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THE
GENERA OF FUNGI

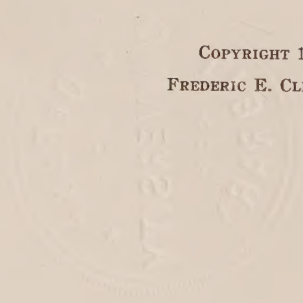
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PREFACE.

The present book is an outgrowth of a translation of the keys in the original eight volumes of Saccardo's "Sylloge Fungorum." This translation was mimeographed and bound for the use of classes in mycology. It immediately proved so convenient and usable that the preparation of a complete guide to the fungi was begun the same year. Many things have occurred during the past two years to delay the completion of the guide until this time. In its present form, the book is based upon Saccardo's great work, though in certain groups other authors have been followed, and in some cases, the discomycetes and lichens, the treatment amounts almost to a revision. The arrangement of the orders and families is different in a large measure, and in the distribution of the lichens is original. No attempt has been made to revise the genera, except where the treatment had lagged behind current practice, as is particularly true of the lichens. In some cases, genera have been included in others, but this is done only for the sake of the beginner, when the descriptions reveal no differences, and is by no means intended as a revision.

Questions of nomenclature have necessarily been left largely to one side, but no hesitation has been felt in making certain corrections. These have dealt mostly with mistaken or neglected transliteration, and with faulty composition. A considerable number of sesquipedalian words have been shortened, and the greater number of hybrid names have been corrected. These corrections have been made in such a way as to retain as much of the original name as possible. Corrections are indicated by the sign † with the original form in parenthesis below. New genera are designated by an asterisk, and are listed with their types on a later page.

The genera described in volumes 9-18 of the "Sylloge" have been included in the proper family keys. Genera placed under "incertae sedis" are excluded as a rule, since it is impossible to locate them definitely. A few genera occur more than once when they show the characters of two families, or when superficial and developmental features indicate different positions. An endeavor has been made to make the keys as consistent as possible, and as simple as is profitable. The mycologist must have a fair equipment of technical terms, as well as a Latin vocabulary, and the sooner these are acquired the better. In many cases, definiteness will seem to be lost by the use of such terms as "typically," "usually," etc., but the beginner must quickly learn that the line between families is rarely clear-cut, but often on the contrary most devious. The tyro must constantly be warned that some species belong as naturally in one family as in another, and must consequently be sought in more than one place. The color of a spore, the position of a perithecium, or the texture of a cup does not always

conform with a definite term, and the beginner must be governed accordingly.

While the writer is particularly indebted to Saccardo's "Sylloge Fungorum," he is also indebted to Thaxter's "Monograph of the Laboulbeniaceae," and his "Preliminary Diagnoses of New Species of Laboulbeniaceae," II-VI, for the material for the key to this group. The treatment of the Pezizales is largely that of Rehm's "Discomyceten," modified by the inclusion of the lichens. From Engler and Prantl's "Pflanzenfamilien," material has been drawn in the monographs of the bacteria by Migula, of phycomycetes and other groups by Schröter and Lindau, and especially of the lichens by Zahlbruckner. The writer is also under heavy obligation to Dr. Edith Clements, for the preparation of the Glossary, and for much other work of preparation and of publication. His thanks are also due to Professor Raymond J. Pool for assistance in the original mimeograph copies.

FREDERIC EDWARD CLEMENTS.

The University of Minnesota,

June 1, 1909.

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Key to Orders and Families

| | | |
|--|-----------------------------|-----------|
| I. Filaments one-celled, rarely septate, typically aquatic or endobiotic; propagation by fission or by conidia, the latter usually in sporangia; sex-cells typically present, uniting to form resting-spores | Phycomycetes | 1 |
| II. Filaments septate, typically saprophytic or epibiotic; conidia borne on conidiophores; sex-cells usually absent | | |
| 1. Spores in a hymenium composed of asci or club-shaped basidia | | |
| a. Spores in asci | Ascomycetes | 2 |
| b. Spores on more or less club-shaped basidia | Basidiomycetes | 5 |
| 2. Conidia on conidiophores of various form, not in asci or on true basidia | Fungi Imperfecti | 6 |
| Phycomycetes | | |
| I. True mycelium lacking or rudimentary | | |
| 1. Threads simple, globose to filamentous, often motile; propagating by fission or by conidia also | | |
| a. Cells single or in colonies, never forming plasmodium-like masses | Bacteriales | 7 |
| (1) Cells filamentous, not spirally twisted | | |
| (a) Filaments motile, sheathless | Beggiatoaceae | 7 |
| (b) Filaments non-motile, sheathed | Chlamydobacteriaceae | 7 |
| (2) Cells cylindric to globose, spirally twisted when filamentous | | |
| (a) Cells more or less spirally twisted | Spirillaceae | 7 |
| (b) Cells not spirally twisted or curved | | |
| x. Cells oblong to cylindric | Bacteriaceae | 8 |
| y. Cells globose or cuboid | Coccaceae | 8 |
| b. Cells secreting a gelatinous matrix and forming pseudoplasmodia, passing into cysts or spore-masses which are often stalked | Myxobactrales | 8 |
| 2. Threads absent or slightly developed; propagation by sporangia which produce zoogonids; sex-cells rare | Chytridiaceae | 9 |
| II. Mycelium present, typically well-developed and branched; propagation by zoogonids or by non-motile conidia borne in sporangia or on conidiophores; sex-cells usually present | | |
| 1. Aerial fungi propagating by conidia | | |
| a. Conidia typically in globose to cylindric sporangia; mostly saprophytes; zygosporous | Mucoraceae | 12 |

- | | | | |
|-----|--|--------------------|----|
| b. | Conidia single or in chains on conidiophores | | |
| (1) | Typically parasitic on insects; zygosporous | Entomophthoraceae | 14 |
| (2) | Typically parasitic on leaves and stems; oosporous | Peronosporaceae | 17 |
| 2. | Typically aquatic fungi propagating by zoogonids | | |
| a. | Mycelium mostly well-developed | | |
| (1) | Antheridial tube touching or penetrating oogone | Saprolegniaceae | 15 |
| (2) | Antherids producing antherozoids | Monoblepharidaceae | 18 |
| b. | Mycelium more or less scanty, developing wholly or chiefly into sporangia and sex-organs | Ancylistaceae | 16 |

Ascomycetes

- | | | | |
|-----|---|-------------------|----|
| I. | Asci completely or partly enclosed in a pericarp | | |
| 1. | Asci in a perithecium | | |
| a. | Perithecia one to many on a receptacle; sex-organs present; typically on insects | Laboulbeniales | 18 |
| b. | Perithecia not on a receptacle; sex organs very rare; rarely on insects | Sphaeriales | 21 |
| (1) | Mycelium or subicle typically present; ostiole and paraphyses usually absent | | |
| (a) | Subicle white; perithecia usually with appendages; asci one to few, more or less ovoid | Erysibaceae | 21 |
| (b) | Subicle dark or black; appendages mostly lacking; asci usually numerous, more or less cylindric | | |
| x. | Perithecia more or less globose | Perisporiaceae | 22 |
| y. | Perithecia clavate to cylindric, often branched | Capnodiaceae | 25 |
| (2) | Subicle usually absent; ostiole and paraphyses typically present | | |
| (a) | Perithecia fleshy or waxy, bright colored | Hypocreaceae | 42 |
| (b) | Perithecia hard, membranous to carbonous, typically brown to black | | |
| x. | Perithecia distinct, not reduced to cavities or locules | | |
| (x) | Perithecia normally globose, single, clustered or in a stroma | | |
| m. | Mycelium not forming a thallus with algae | Sphaeriaceae | 25 |
| n. | Mycelium forming a thallus | Verrucariaceae | 38 |
| (y) | Perithecia flattened, dimidiate and radiate | Microthyriaceae | 51 |
| (z) | Perithecia with a broad and compressed or a funnellform ostiole | | |
| m. | Ostiole broad and compressed, cleft; perithecia mostly carbonous | Lophiostomataceae | 53 |
| n. | Ostiole elongate, then expanded and | | |

| | | |
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| funnel form; perithecia mostly coriaceous | Coryneliaceae | 54 |
| y. Perithecia reduced to locules in a stroma | | |
| (x) Thallus absent | | |
| m. Stromata mostly carbonous or membranous, not attached by a stipe-like point | Dothideaceae | 48 |
| n. Stromata subcarnose, attached by a stipe-like point | Coccoideaceae | 50 |
| (y) Thallus present | Mycoporaceae | 50 |
| 2. Asci in a hysterothecium, i. e., a perithecium with a cleft-like ostiole, typically oblong to linear, rarely vertical | Hysteriales | 54 |
| a. Hysterothecium imperfect, dimidiate-scutate, but the ostiole a cleft | Hemihysteriaceae | 54 |
| b. Hysterothecium more or less elongate and rimose, or rounded and stellately cleft | | |
| (1) Hysterothecium elongate, rimose, rarely vertical | | |
| (a) Thallus absent | Hysteriaceae | 55 |
| (b) Thallus present | Graphidaceae | 58 |
| (2) Hysterothecium round to linear, ostiole more or less stellate or lobed; thallus present or absent | | |
| 3. Asci in an apothecium | Arthoniae | 58 |
| a. Apothecia closed at first, then open, disk-shaped to cup-shaped, rarely elongate | Pezizales | 61 |
| (1) Thallus lacking | | |
| (a) Apothecia sunken, then erumpent, usually opening by lobes, rarely by a cleft | | |
| x. Apothecia opening by stellate or irregular lobes or by a cleft | | |
| (x) Apothecia dark, brown or black | | |
| m. Apothecia mostly carbonous or leathery; hypothecium thin | Phacidiaceae | 61 |
| n. Apothecia mostly membranous or horny; hypothecium thick | Tryblidiaceae | 65 |
| (y) Apothecia white or bright colored, typically waxy | Stictidaceae | 62 |
| y. Apothecia usually opening circularly, mostly leathery or horny, brown or black | Dermateaceae | 65 |
| (b) Apothecia typically superficial and opening circularly, usually waxy or fleshy but often carbonous, gelatinous or leathery | | |
| x. Asci disappearing early; spores and paraphyses forming a mazaedium | Caliciaceae | 70 |
| y. Asci persistent; mazaedium lacking | | |

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| (x) Apothecia not branched-stipitate at the tips of branches | | |
| m. Apothecia gelatinous | Bulgariaceae | 66 |
| n. Apothecia not gelatinous | | |
| (m) Apothecia usually dark or black, carbonous to leathery, rarely waxy | Patellariaceae | 68 |
| (n) Apothecia usually bright colored, waxy to fleshy | | |
| r. Apothecia typically waxy, on plant parts | | |
| (r) Exciple brownish, parenchymatic all over or at the base; mostly sessile | Mollisiaceae | 84 |
| (s) Exciple concolorous, prosenchymatic; mostly stalked | Helotiaceae | 86 |
| s. Apothecia typically fleshy, usually terrestrial, often fimicole | | |
| (r) Apothecia usually terrestrial, medium to large; asci mostly cylindric, not exerted | Pezizaceae | 88 |
| (s) Apothecia usually fimicole; asci broad, exerted from disk at maturity | Ascobolaceae | 92 |
| (y) Apothecia branched-stipitate at the tips of branches | Cordieritaceae | 92 |
| (2) Thallus present | | |
| (a) Asci disappearing early; disk with a mazaedium | Caliciaceae | 70 |
| (b) Asci persistent; mazaedium absent | | |
| x. Thallus cottony, cobwebby or spongy; algae yellow-green | Chrysotrichaceae | 72 |
| y. Thallus more or less distinctly gelatinous; algae blue-green | Collemataceae | 72 |
| z. Thallus firm, layered, neither gelatinous nor cottony | | |
| (x) Thallus of two sorts: one horizontal, the other erect, i. e., a podetium | Cladoniaceae | 78 |
| (y) Thallus of one sort only, horizontal or erect | | |
| m. Spores typically 2-celled, with a thickened cross-wall, usually traversed by a narrow canal | Physciaceae | 83 |
| n. Spores without thickened cross-wall and intersecting canal | | |
| (m) Apothecia sunken, or grown together with the thallus on the whole underside | Peltophoraceae | 75 |
| (n) Apothecia typically superficial when mature, not attached broadly | | |

| | | |
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| r. Apothecia with proper exciple | Lecideaceae | 76 |
| s. Apothecia typically with thalline exciple | Parmeliaceae | 78 |
| b. Apothecia open from the first, stalked, saddle-shaped, pileate to club-shaped, terrestrial as a rule | Helvellaceae | 90 |
| 4. Asci in a closed globose body or ascoma, containing cavities or veins | Tuberales | 94 |
| a. Ascomata epigean | | |
| (1) Ascomata fleshy with locules at the margin, forming swellings on branches of living trees | Cyttariaceae | 94 |
| (2) Ascomata minute, waxy to subcarbonous, crowded with locules containing a single ascus each | Phymatosphaeriaceae | 95 |
| (3) Ascomata fragile, asci evanescent, then powdery within; epizoic | Onygenaceae | 96 |
| b. Ascomata hypogean | | |
| (1) Ascomata woody, crustose or carbonous, powdery within | Elaphomycetaceae | 96 |
| (2) Ascomata fleshy or waxy, not powdery but veined or lacunose within | Tuberaceae | 96 |
| II. Asci exposed, apothecium lacking | | |
| 1. Spores free in the ascus | Gymnascales | 93 |
| a. Asci parallel and crowded, usually deforming living plant parts | Exasaceae | 93 |
| b. Asci solitary or grouped irregularly, saprophytic or when parasitic scarcely deforming the host | Gymnascaceae | 93 |
| c. Asci abnormal, rare; mycelium poorly developed, propagating by budding | Saccharomycetaceae | 94 |
| 2. Spore wall united with ascus wall, or asci disappearing at maturity | Uredinales | 98 |
| a. Spores and ascus united; aecidia and uredinia often present | Uredinaceae | 98 |
| b. Asci disappearing early, leaving a firm or powdery spore-mass | Ustilaginaceae | 101 |
| Basidiomycetes | | |
| I. Hymenium variously modified, exposed at maturity | Agaricales | 102 |
| 1. Basidia septate crosswise or lengthwise, or furcate; usually gelatinous | Tremellaceae | 103 |
| 2. Basidia not septate; pileus fleshy, waxy, leathery or woody | | |
| a. Hymenium more or less uniform | | |
| (1) Pileus funnel-form, dimidiate or resupinate | Thelephoraceae | 106 |
| (2) Pileus club-shaped, coralloid or filiform | Clavariaceae | 105 |
| b. Hymenium modified into teeth, pores or gills | | |
| (1) Hymenium of teeth or granules | Hydnaceae | 107 |
| (2) Hymenium of pores or tubes | Polyporaceae | 108 |

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|---|------------------|-----|
| (3) Hymenium of gills or gill-like veins | Agaricaceae | 110 |
| II. Definite hymenium lacking; spore-mass gelatinous or powdery, typically enclosed in a peridium, or elevated at maturity | Lycoperdales | 115 |
| 1. Gleba more or less gelatinous, enclosed at first in a volva, then raised on the receptacle | Phallaceae | 115 |
| 2. Gleba firm or powdery, not gelatinous, enclosed in a peridium | | |
| a. Peridium epigean | | |
| (1) Gleba typically powdery or cellular, enclosed in a more or less globose peridium which opens irregularly or by a definite mouth | Lycoperdaceae | 116 |
| (2) Gleba in seed-like sporiangioles which are borne in a more or less cup-shaped peridium | Nidulariaceae | 120 |
| b. Peridium hypogean, closed | Hymenogastraceae | 119 |

Fungi Imperfecti

| | | |
|--|-------------------|-----|
| I. Conidia present | | |
| 1. Conidia in globoid, cup-shaped or hysteroïd pycnidia | Phomatales | 121 |
| a. Pycnidia fleshy or waxy, bright colored | Zythiaceae | 128 |
| b. Pycnidia typically membranous to carbonous, dark, brown or black | | |
| (1) Pycnidia more or less globose, rarely cylindric | Phomataceae | 121 |
| (2) Pycnidia dimidiate, shield-shaped | Leptostromataceae | 130 |
| (3) Pycnidia disciform, cup-shaped or hysteroïd | Excipulaceae | 133 |
| 2. Conidia not in pycnidia | | |
| a. Hyphae short or obsolete, borne on a matrix or stratum | Melanconiales | 135 |
| b. Hyphae not on a matrix, typically well-developed, but sometimes short or even lacking | Moniliales | 138 |
| (1) Hyphae in more or less loose cottony masses | | |
| (a) Hyphae and conidia clear or bright colored | Moniliaceae | 138 |
| (b) Hyphae and conidia both typically dark or one or the other always dark | Dematiaceae | 146 |
| (2) Hyphae compactly united to form a globose to cylindric body which is often stalked | | |
| (a) Hyphal body cylindric to capitata, stalked, i. e., a synnema | Stilbaceae | 154 |
| (b) Hyphal body more or less globose, sessile, i. e., a sporodochium | Tuberculariaceae | 158 |
| II. Conidia lacking | Sterile Mycelia | 164 |

Key to the Genera

Class 1. SCHIZOMYCETES

Typically one-celled fungi, dividing by fission in 1, 2 or 3 planes, sometimes forming true filaments, but then motile or sheathed, and without true branches; resting cells often developed; sexual reproduction lacking.

Order 1. BACTERIALES

Globose, rod-like or filamentous, single or in colonies, sometimes grouped into a loose mass (zoogloea), but never forming pseudoplasmodia or sporangium-like masses.

Family 1. BEGGIATOACEAE

MIGULA 40

Filaments simple, free, motile, continuous or septate, sheathless, usually filled with shining or yellowish sulphur granules.

A single genus

Beggiatoa 8: 935

Family 2. CHLAMYDOBACTERIACEAE

MIGULA 35

Filaments simple or false-branched, typically attached, non-motile, septate, with a more or less conspicuous sheath; propagation by ciliate, creeping or non-motile conidia.

I. Cells without sulphur granules

1. Filaments simple

a. Fission always in one plane

Nocardia 8: 927

b. Fission in 3 planes during conidia formation

(1) Filaments marine, sheath very thin

Phragmidiothrix 8: 935

(2) Filaments fresh-water, sheath distinct

Crenothrix 8: 925

2. Filaments false-branched

Cladothrix 8: 927

II. Cells with sulphur granules

Thiothrix 8: 934

Family 3. SPIRILLACEAE

MIGULA 30

One-celled, more or less spirally twisted, rod-like or short-filamentous, usually motile by means of one to many flagella.

I. Cells stiff or rigid

- | | |
|-----------------------------------|----------------------------|
| 1. Flagella lacking | Spirosoma M. 31 |
| 2. Flagella present | |
| a. Flagellum 1, rarely 2-3, polar | Microspira M. 31 |
| b. Flagella clustered, polar | Spirillum 8: 1006 |
| II. Cells flexible | Spirochaete 8: 1006 |

Family 4. BACTERIACEAE

MIGULA 20

One-celled, cells oblong to cylindric, straight or at least never spirally curved, flagella often present.

- | | |
|------------------------|--------------------------|
| I. Flagella lacking | Bacterium 8: 1020 |
| II. Flagella present | |
| 1. Flagella peripheral | Bacillus 8: 943 |
| 2. Flagella polar | Pseudomonas M. 29 |

Family 5. COCCACEAE

MIGULA 15

One-celled, cells globose, usually flattened when grouped in rows or masses, flagella usually absent.

- | | |
|--|------------------------------|
| I. Flagella lacking | |
| 1. Fission in one plane, cells in rows | Streptococcus 8: 1054 |
| 2. Fission in two planes, cells in plates | Micrococcus 8: 1076 |
| 3. Fission in three planes, cells in bundles | Sarcina 8: 1044 |
| II. Flagella present | |
| 1. Fission in two planes | Planococcus M. 19 |
| 2. Fission in three planes | Planosarcina M. 20 |

Order 2. MYXOBACTRALES

Cells rod-like, motile, fission in one plane; cells secreting a gelatinous base and forming pseudoplasmodia, then passing into cysts, or spore-masses which are often stalked (cystophore).

Family 6. MYXOBACTERIACEAE

II: 460, T. 389

Characters of the order.

- | | |
|---|--|
| I. Cells always rod-like, distinct cysts present | |
| 1. Cysts free, usually on a cystophore | Chondromyces 14: 842 |
| 2. Cysts one or more in a gelatinous matrix | Myxobacter 14: 844 (Polyangium 7: 47) |
| II. Cells finally forming rows of globose spores, no definite cysts | Myxococcus 14: 843 |

Class 2. CHLOROPHYCEAE

Typically one-celled or filamentous plants, for the most part chlorophyllous but

each order containing at least one fungous family; propagation by fission and zoogonids; sexual reproduction present in most.

Order 3. PROTOCOCCALES

Typically one-celled algae, usually dividing by fission and producing zoogonids; sexual reproduction often lacking; one fungous family.

Family 7. CHYTRIDIACEAE

7: 286, SCHROETER 65

Mycelium lacking or in the form of delicate protoplasmic threads, rarely of hyphae, one-celled; sporangiophore lacking or but slightly developed; sporangia producing zoogonids, thin-walled and ripening quickly, or thick-walled and resting for a time (resting sporangia); sexual reproduction present in a few forms, the sex organs scarcely distinguishable.

Key to the Subfamilies

- I. Resting sporangium asexual, rarely formed by the union of two zoogonids
 1. Mycelium completely lacking
 - a. Sporangia separate, one formed from each fruit-mass
Olpidiae
 - b. Sporangia in sori, formed by division of fruit-mass
Synchytriae
 2. Mycelium present
 - a. Mycelium of delicate transient strands
 - (1) Mycelium limited to one terminal sporangium
Rhizidiae
 - (2) Mycelium extended, sporangia intercalary and terminal
Cladochytriae
 - b. Mycelium consisting of permanent hyphae
Hyphochytriae
- II. Sexual resting spores formed by union of two sporangia and passing of contents of one into the other
Oochytriae
- III. Sexual spores formed by conjugation
Zygochytriae

Subfamily Olpidiae

SCHROETER 67

Mycelium lacking; fruit-mass endobiotic, globose, elliptic, rarely subclavate, undivided, finally forming a simple zoosporangium or resting sporangium, in which zoospores are formed after a period of rest.

- I. Fruit-body amoeboid before maturity
Reessia 7: 304, S. 67
- II. Fruit-body without movement
 1. Sporangia free in the host-cell
 - a. Membrane delicate, dissolving to free zoospores
Sphaerita 7: 314, S. 67
 - b. Membrane firm, with a definite opening
 - (1) Sporangia globose or elliptic
 - (a) Sporangia with 1, rarely 2, openings

- x. Zoospores 1-ciliate; resting sporangium smooth
Olpidium 7: 310, S. 67
- y. Zoospores 2-ciliate; resting sporangium spiny or warted
Olpidiopsis 7: 299, S. 69
- (b) Zoosporangia with many openings
Pleotrachelus 7: 315, S. 69
- (2) Sporangia elongate or clavate
Ectrogella 7: 315, S. 70
- 2. Wall of sporangium fused with wall of host-cell
Pleolpidium S. 70

Subfamily Synchytriae

SCHROETER 71

Mycelium lacking; fruit-body endobiotic, when mature dividing simultaneously to form zoosporangia grouped in rows or in a sorus; resting sporangia arising directly from the fruit-body or by the division of it.

- I. Zoosporangia arising through direct division of entire plasmodium of fruit-body, not surrounded by a common membrane
 - 1. Sporangia filling host-cell completely, wall fused with that of host-cell
Rozella 7: 300, S. 71
 - 2. Sporangia free, aggregated
Woronina 7: 301, S. 71
- II. Zoosporangia arising through division of the full-grown fruit-body, surrounded by the common membrane of the mother cell
 - 1. Sporangia formed directly from the full-grown fruit-body
Synchytrium 7: 288, S. 72
 - 2. Sporangia formed from the division of a thin-walled mother-cell which escapes from the fruit body
Pycnochytrium S. 73

Subfamily Rhizidiace

SCHROETER 75

Fruit-body endophytic, epiphytic, or living free between the nutrient media, at base, with a slender (in epiphytic forms sometimes scarcely perceptible) often branched mycelium, distinct for each fruit-body and imbedded in the matrix; zoosporangia globose or oblong, simple, often with a sterile swollen cell at base; zoospores globose, 1-ciliate; resting sporangia formed asexually, usually like the zoosporangia.

- I. Zoosporangia breaking out with an irregular or tube-like mouth, like the resting sporangia, which arise at the same place; mycelium delicate
 - 1. Sporangia without basal cell, arising directly from mycelium
 - a. Sporangia endophytic
Entophlyctis 14: 443, S. 75
 - b. Sporangia epiphytic or free
 - (1) Sporangia epiphytic, seated thickly on host-cell
Rhizophidium 7: 298, S. 76
 - (2) Sporangia free, mycelium only penetrating nutrient medium
 - (a) Zoospores escaping singly
Rhizophlyctis 14: 445, S. 77
 - (b) Zoospores escaping as a ball
Nowakowskia 7: 313, S. 77
 - 2. Sporangia with stalk-like or swollen basal cell
 - a. Sporangia with a stalk-like cell
 - (1) Epiphytic; stalk separated by wall from sporangium

- (a) Sporangium straight, rounded above

Podochytrium S. 77

- (b) Sporangium curved, pointed above

Harpochytrium 11: 249, S. 77

- (2) Saprophytic; stalk not separated from sporangium

Obelidium 7: 299, S. 77

- b. Sporangia with swollen basal cell

- (1) Sporangium and basal cell endophytic

Diplophlyctis S. 78

- (2) Sporangium epiphytic or free

- (a) Sporangium epiphytic

- x. Zoospores escaping singly

Phlyctochytrium S. 78

- y. Zoospores escaping in a ball

Rhizidiomyces 7: 316, S. 79

- (b) Sporangia saprophytic, free

Rhizidium 7: 296, S. 79

- II. Zoosporangia opening by a lid, epiphytic; resting sporangia endophytic, mycelium tubular or saccate

Chytridium 7: 304, S. 80

Subfamily Cladochytriae

SCHROETER 80

Mycelium diffuse, repeatedly branched, saprophytic, intercellular or intracellular, forming many sporangia, delicate, disappearing by the maturity of the spores; sporangia intercalary or terminal, zoospores 1-ciliate; resting sporangia produced asexually.

- I. Resting sporangia alone present

Physoderma 7: 317, S. 81

- II. Zoosporangia alone present

Cladochytrium 7: 295, S. 81

1. Endophytic, intracellular

2. Free, in algal slime

- a. Sporangia opening by a hole

Amoebochytrium 7: 315, S. 82

- b. Sporangia opening by a lid

Nowakowskiella 17: 514, S. 82

Subfamily Harpochytriae

SCHROETER 83

Mycelium strongly developed, cylindric, persistent; sporangia alone known, formed asexually.

- I. Mycelium and sporangia in the host-cell

Catenaria 9: 360, S. 83

- II. Sporangia in part at least free

1. Parasitic

- a. Mycelium endophytic

Harpochytrium 11: 249, S. 84

- b. Mycelium endozoic

Polyrrhina 7: 314, S. 84

2. Saprophytic

Tetrachytrium 7: 295, S. 84

Subfamily Oochytriae

SCHROETER 84

Mycelium lacking or variously developed; resting sporangium formed by the union of two young fruit-bodies, in which the plasm of one passes into the other which develops as an oogone; zoosporangia present, spherical to elongate.

- I. Mycelium entirely lacking

Diplophysa 7: 302, S. 85

- II. Mycelium present

1. Mycelium producing a single fruit-body **Polyphagus 7: 302, S. 85**
2. Mycelium producing several fruit-bodies **Urophlyctis 7: 303, S. 86**

Subfamily Zygochytriace

SCHROETER 87

Mycelium one-celled, upright, branched, producing zoospores and zygospores; zoosporangia single on ends of the branches, opening by a lid, zoospores one-ciliate; zygospores produced by the fusion of the end-cells of conjugating tubes, growing into a filament upon germination; intermediate between Chytridiaceae and Mucoraceae.

A single genus

Zygochytrium 7: 294, S. 87

Order 4. SPIROGYRALES

Typically one-celled or simple filamentous algae, without zoospores; sexual reproduction by the conjugation of similar gametes; two fungous families.

Family 8. MUCORACEAE

SCHROETER 119, 7: 182, 9: 335, 11: 239, 14: 432, 16: 383, 17: 494

Saprophytes, rarely parasites, with a well-developed branching mycelium in which cross-walls are absent; propagation by spores (conidia) arising within sporangia, the latter apparently reduced to chains of conidia in one family; reproduction by the union of the end-cells or gametes of conjugating tubes.

Key to the Subfamilies

- I. Sporangia always present, conidia sometimes present
 1. Columella present; zygospore naked or with a few appendages
 - a. Wall of the sporangium homogeneous, not cuticularized, diffluent
Mucorae
 - b. Wall cuticularized and persistent above, thin and diffluent below
Pilobolae
 2. Columella absent; zygospore enveloped in a dense covering
Mortierellae
- II. Sporangia rarely present, conidia always present
 1. Conidia solitary; zygospore arising directly from the gametes
 - a. Sporangia present
Choanophorae
 - b. Sporangia lacking
Chaetocladiace
 2. Conidia in chains; zygospore arising from outgrowths of gametes
Syncephalidae

Subfamily Mucorae

7: 184, S. 123

Mycelium similar throughout or consisting of aerial and nutritive parts; sporangia alike or of two sorts, primary and accessory, the former with columella, the latter mostly without one; zygospore naked or with separate appendages arising from the suspensors.

I. Sporangia similar

1. Sporangiphore simple or branched, but not repeatedly dichotomous

a. Suspensors without appendages at maturity

(1) Aerial mycelium lacking

(a) Sporangia single, terminal

Mucor 7: 190, S. 124

(b) Sporangia clustered, lateral

x. Sporangia globose

Circinella 7: 215, S. 125

y. Sporangia long pear-shaped

Pirella 7: 216, S. 125

(2) Aerial mycelium present

(a) Aerial mycelium stoloniferous

Rhizopus 7: 212, S. 125

(b) Aerial mycelium with many short thorn-like branches

Spinellus 7: 205, S. 125

b. Suspensors with thorny appendages at maturity

(1) Appendages spreading

Phycomyces 7: 204, S. 126

(2) Appendages loosely enclosing the zygospore

Absidia 7: 214, S. 126

2. Sporangiphore repeatedly dichotomous

Sporodinia 7: 206, S. 127

II. Sporangia of two sorts, primary and secondary

1. Primary sporangia with, secondary without columella

Thamnidium 7: 211, S. 127

2. Both kinds of sporangia with columella

Dicranophora 11: 240, S. 128**Subfamily Pilobolae**

7: 184, S. 123

Mycelium similar throughout; sporangia alike, with columella, sporangial wall cuticularized and persistent above; zygospores naked.

I. Sporangiphore equal, sporangium not thrown off

Pilaira 7: 188, S. 129

II. Sporangiphore swollen above, sporangium thrown off

Pilobolus 7: 184, S. 129**Subfamily Mortierellae**

7: 184, S. 130

Sporangia similar, terminal, without columella; conidia single, spherical on short lateral branches of the aerial mycelium; zygospore enclosed in a dense mass of hyphae arising from the suspensors.

I. Sporangiphores erect, branches attenuate toward tip

Mortierella 7: 220, S. 130

II. Sporangiphores creeping, branches equal

Herpocladiella 7: 225, S. 130**Subfamily Choanophorae**

9: 339, S. 131

Mycelium parasitic on plant parts; sporangia and conidia both present; conidio-

phores simple or branched, bearing one-celled conidia; sporangiophores simple, sporangia with a small columella.

A single genus

Choanophora 9: 339, S. 131

Subfamily Chaetocladiæ

7: 220, S. 131

Mycelium parasitic on species of *Mucor*; propagation by conidia, sporangia lacking, conidia arising on short side branches; zygosporangia arising directly from the fused gametes.

A single genus

Chaetocladium 7: 220, S. 131

Subfamily Syncephalidæ

7: 225, S. 132

Conidia in chains on short basidia borne on the end of the sporophores; zygosporangia arising as an outgrowth from the tips of the suspensors after conjugation.

I. Sporophores not swollen at tip

Piptocephalis 7: 225, S. 132

II. Sporophores swollen into a head at tip

1. Sporophore simple

Syncephalis 7: 227, S. 132

2. Sporophore branched

Syncephalastrum 7: 232, S. 134

Family 9. ENTOMOPHTHORACEAE

SCHROETER 134, 7: 280, 9: 349, 14: 437, 16: 388, 17: 510

Mycelium usually well-developed, tubular or filamentous, mostly parasitic or endozoic, rarely saprophytic, at first one-celled, then septate; propagation by one-celled conidia terminal on one-celled clavate conidiophores; zygosporangia globose.

I. Mycelium endozoic (in insects)

1. Conidia always present

a. Conidiophore simple, zygosporangia unknown, azygosporangia present

(1) Cystidia and holdfasts lacking; azygosporangia lateral

Empusa 7: 281, S. 138

(2) Cystidia and holdfasts present; azygosporangia terminal

Lamia S. 139

b. Conidiophore repeatedly branched, zygosporangia and azygosporangia present

Entomophthora 7: 282, S. 139

2. Azygosporangia alone present

Tarichium 7: 284, S. 140

II. Mycelium endophytic or saprophytic

1. Mycelium little developed, intracellular

Completoaria 7: 286, S. 140

2. Mycelium well-developed, not intracellular

a. Parasitic on fungi

Conidiobolus 7: 285, S. 141

b. Saprophytic

Basidiobolus 7: 285, S. 141

Order 5. VAUCHERIALES

Unicellular, multinucleate, saccate or filamentous algae and fungi; propagation by zoospores or conidia; sexual reproduction in the three fungous families by unlike gametes, produced in antherids and oogones.

Family 10. SAPROLEGNIACEAE

SCHROETER 93, 7: 264, 9: 345, 11: 244, 14: 450, 16: 395, 17: 519

Mycelium strongly developed, broadly filamentous, more or less branched; propagation by zoosporangia, producing ciliate, rarely non-motile, zoospores; sexual reproduction by antherids and oogones, their contents fusing by means of a connecting tube.

Key to the Subfamilies

- I. Vegetative mycelium broad, tubular, aquatic; zoosporangia cylindric, of the same width as the mycelium
 1. Filaments uniform, not constricted **Saprolegniae**
 2. Filaments constricted regularly **Leptomitae**
- II. Vegetative mycelium thin, mostly saprophytic on plant tissues; zoosporangia several times broader than the filaments **Pythiae**

Subfamily Saprolegniae

SCHROETER 96

Nutritive mycelium sunken in the substratum, finely branched, water mycelium tubular, repeatedly branched, cylindric; zoosporangia narrowly cylindric; oogones mostly terminal, globose, 1- to many-spored, antheridia clavate, the tube penetrating the oogone.

- I. Zoospores escaping before germination
 1. Zoosporangia cylindric-clavate, zoospores several-rowed
 - a. Zoospores escaping together through a terminal pore
 - (1) Zoospores scattering upon escape
 - (a) Zoosporangia ovate **Pythiopsis S. 97**
 - (b) Zoosporangia cylindric **Saprolegnia 7: 268, S. 97**
 - (2) Zoospores remaining massed about the pore **Achlya 7: 274, S. 99**
 - b. Zoospores not escaping through a common opening
 - (1) Each zoospore escaping singly through its own lateral pore **Dictyuchus 7: 273, S. 99**
 - (2) Zoospores freed by the falling apart of the whole sporangium **Thraustotheca S. 100**
 2. Zoosporangia linear, zoospores 1-rowed
 - a. Zoospores scattering upon escape **Leptolegnia S. 100**
 - b. Zoospores remaining in a ball at the pore **Aphanomyces 7: 276, S. 100**
- II. Zoospores germinating in the sporangium **Aplanes S. 101**

Subfamily Leptomitae

SCHROETER 101

Filaments thin, branched, divided by regular constrictions; zoosporangia cylindric, pear-shaped or elliptic; oogones 1-spored.

- I. Branches similar to the main stem

1. Zoospores escaping singly from the pore
Leptomitrus 7: 265, S. 101
2. Zoospores remaining in a hollow ball about the pore before swimming
Apodachlya S. 102
- II. Branches different from the main stem
 1. Branches whorled
Naegeliella S. 163
 2. Branches repeatedly umbellate-ramose
Araeospora 14: 454
 3. Branches springing from the swollen tip of the main stem
Rhipidium 7: 268, S. 103

Subfamily Pythiae

SCHROETER 104

Vegetative mycelium very narrow, uniform, much-branched; sporangiophores not distinct from mycelium; zoosporangium filamentous, cylindric, ellipsoid or globose, contents escaping in a globose vesicle in which the zoospores arise, zoospores 2-ciliate; oogones globose, terminal, rarely intercalary, 1-spored.

- I. Zoosporangia filamentous
Nematosporangium S. 104
- II. Zoosporangia globose or lemon-shaped
Pythium 7: 270, S. 104

Family 11. ANCYLISTACEAE

SCHROETER 89, 7: 278, 9: 348, 14: 450, 16: 395, 17: 516

Mycelium mostly poorly developed and scarcely distinct from the fruit-body, the latter tubular, when mature divided into vegetative cells, sporangia or oogones and antherids; entire contents of antherid passing into oogone, oospore lying free; sporangia always producing zoospores.

Key to the Subfamilies

- I. Filament or fruit-body producing wholly sporangia or sex cells, mycelium entirely lacking
Lagenidiæ
- II. Filament producing vegetative cells also, the latter germinating to form threads
Ancylistæ

Subfamily Lagenidiæ

Fruit-body filamentous, tubular, simple or branched, dividing into cells which develop into sporangia or sex cells; antherids on the same or on different fruit bodies; sporangia and oospores always giving rise to zoospores.

- I. In fresh-water algae, rarely in animals
 1. Filament simple
 - a. Zoospores escaping singly from the sporangium
Achlyogeton 7: 277, S. 89
 - b. Sporangial plasm poured out into a vesicle in which the zoospores are formed
Myzocytium 7: 279, S. 90
 2. Filament with short side-branches
Lagenidium 7: 278, S. 90
- II. In the root-hairs of plants
Rhizomyxa 7: 278, S. 91

Subfamily Ancylistæ

Fruit-body tubular, mycelium-like, unbranched or with few short side-branches, when mature dividing into a number of chain-like cells, which develop into vegetative

cells, sporangia or sex cells; sporangia producing zoospores; vegetative cells producing a long tube, which penetrates new host-cells; oospores globose or elliptic.

I. Sporangia lacking, vegetative and sex cells alone formed

Ancylistes 7: 280, S. 92

II. Sporangia also present

Resticularia 9: 348, S. 92

Family 12. PERONOSPORACEAE

SCHROETER 110, 7: 233, 9: 340, 11: 242, 14: 457, 16: 396, 17: 519

Mycelium abundant, filamentous, much branched, one-celled, endophytic; propagation by conidia borne on the ends of conidiophores, conidia producing zoospores or a germinating tube; sexual reproduction by means of endophytic antherids and oogones, borne on the ends of lateral branches; oospores single, globose, producing zoospores or a germinating tube.

Key to the Subfamilies

I. Conidia in chains, conidiophores club-shaped

Albuginae

II. Conidia single, conidiophores branched

Peronosporae

Subfamily Albuginae

Mycelium intercellular, haustoria globose; conidiophores densely grouped into a conidial layer beneath the epidermis; conidia globose, ellipsoid or subcylindric, in chains on the ends of the conidiophores, usually producing zoospores, rarely a germinating tube; oospores globose, producing zoospores.

A single genus

Albugo 7: 233, S. 110

Subfamily Peronosporae

Mycelium intercellular, rarely intracellular, haustoria of various form; conidiophores thread-like, above the epidermis, branched, without cross-walls; conidia single on the tips of the branchlets, producing zoospores or a germinating tube; oospores globose, with a well-developed outer wall, germinating by means of a tube.

I. Conidiophores slender, with long and slender branches

1. Conidiophore growing after the formation of the first conidia, producing new joints

Phytophthora 7: 237, S. 113

2. Conidiophore not growing and making new extensions

a. Conidia papillate at the tip

(1) Conidia on stalks arising from irregular disks

Bremia 7: 243, S. 116

(2) Conidia on stalks arising directly from the unchanged ends of the conidiophores

Plasmopara 7: 239

b. Conidia not papillate at the tip

Peronospora 7: 244, S. 117

II. Conidiophores stout, swollen at the tip, or with short thick branches

1. Conidiophore simple up to the enlarged tip, which bears the conidia on slender stalks

Basidiophora S. 114

2. Conidiophore with short thick branches bearing the conidia on flask-like stalks

Sclerospora 7: 238, S. 114

Order 6. CONFERVALES

Typically multicellular filamentous algae, propagating by zoospores, and reproducing by the union of isogametes, or by heterogametes borne in antherids and oogones; one fungous family.

Family 13. MONOBLEPHARIDACEAE

SCHROETER 106, 7: 277, 14: 452, 16: 394

Mycelium filamentous, one-celled or septate, producing zoospores and sex cells; zoospores 1-ciliate arising in terminal sporangia; antherids cylindric producing ciliate antherozoids; oogones globose, terminal, opening by a pore, 1-spored.

I. Zoospores 1-ciliate

1. Mycelial threads equal throughout **Monoblepharis 7: 277, S. 107**
2. Mycelial threads constricted, necklace-like **Gonapodya 14: 452, S. 107**

II. Zoospores two or more ciliate

1. Zoospores 2-ciliate **Diblepharis 16: 395**
2. Zoospores many-ciliate **Myrioblepharis 14: 455**

Class 4. ASCOMYCETES

Fungi usually destitute of a conspicuous mycelium, reproducing by means of a spore-fruit containing asci (perithecium or apothecium), the spore-fruit occasionally reduced to a group of naked asci.

Order 7. LABOULBENIALES

THAXTER 197, LINDAU 491

Family 14. LABOULBENIACEAE

8: 909, 9: 1130, 11: 446, 14: 725, 16: 674, 17: 915

Receptacle consisting of two to many cells in a row, or parenchyma-like, regularly producing from the cells one or more appendages bearing antherids as a rule; antherozoids normally endogenous, borne within flask-like, simple or compound antherids, rarely produced like conidia, i. e., naked or exogenous; perithecia one to many, stalked or sessile, terminal or lateral on the receptacle, resulting from fertilization by means of a trichogyne; asci seriate, mostly 4-spored, spores usually 2-celled.

I. Antherozoids endogenous, i. e., in closed antherids

1. Antheridial cells forming a compound antherid
 - a. Dioecious
 - (1) Perithecia and appendages in pairs to the right and left **Dimorphomyces T. 264, L. 497**
 - (2) Perithecia and appendages in a row **Dimeromyces T. 267, L. 497**
 - b. Monoecious
 - (1) Antherids arising on an appendage
 - (a) Antherids lateral
 - x. On a subbasal cell of the appendage **Cantharomyces T. 271, L. 497**

- y. On short opposite branchlets of the appendage
Stichomyces T. 4: 37
- (b) Antherids terminal
 - x. Antherid with a short spine at the tip
Haplomyces T. 269, L. 497
 - y. Antherid without a spine but with a neck-like canal cell
 - (x) Ascogenic cells at least 36 **Polyascomyces T. 2: 414**
 - (y) Ascogenic cells few
 - m. Stalk of antherid a single cell
 - (m) Antheridial cells obliquely in vertical rows
 - r. Subbasal cell of receptacle with a sterile appendage
Eumonoecomyces T. 4: 21
 - s. Subbasal cell of receptacle without sterile appendage
Eucantharomyces T. 273, L. 497
 - (n) Antherid parenchyma-like, many-celled
 - r. Antheridial cells with three marginal cells
Euhaplomyces T. 4: 25
 - s. Antherial cells without marginal cells
Camptomyces T. 274, L. 498
 - (o) Antherid of several superposed cells bearing single simple antherids directly
 - r. Simple antherids two **Acallomyces T. 5: 23**
 - s. Simple antherids several
Acompsomyces T. 4: 37
 - n. Stalk of two cells placed side by side
Monoecomyces T. 2: 412, 4: 23
- (2) Antherids arising on the receptacle
 - (a) Perithecia free
 - x. Receptacle of a single row of several to many superposed cells
Enarthromyces T. 276, L. 498
 - y. Receptacle of one or two superposed cells followed by two or three oblique or transverse rows
 - (x) Receptacle with one basal cell
 - m. Basal cell followed by two tiers of cells
Limnaecomyces T. 2: 428
 - n. Basal cell followed by three symmetrical series
Dichomyces T. 282, L. 499
 - (y) Receptacle with two superposed basal cells
Peyritschella T. 278, L. 499
 - (b) Perithecia grown together with distal portion of receptacle
 - x. Base of receptacle of two superposed cells
Chitonomyces T. 285, L. 499
 - y. Base of three superposed cells
Hydraecomyces T. 293, L. 500
- 2. Antheridial cells distinct, discharging independently
 - a. Dioecious
 - (1) Perithecium borne by the basal or subbasal cell of receptacle
 - (a) Perithecium on the single basal cell, spores continuous
Amorphomyces T. 295, L. 501

- (b) Perithecium lateral on the subbasal cell, spores obliquely 1-septate
Dioecomyces T. 4: 33
- (2) Two-celled normal receptacle producing secondary receptacles on which the perithecia are borne
Herpomyces T. 5: 11
- b. Monoecious
 - (1) Antherids in definite series on the appendages
 - (a) Arising directly from cells of the appendages
 - x. Appendage one
(x) Antherids in 4 vertical series
Helminthophana T. 297, L. 501
 - (y) Antherids in a single vertical series
Stigmatomyces T. 298, L. 501
 - y. Appendages numerous, antherids in 3 vertical series
Idiomyces T. 302, L. 501
 - (b) Borne on branches of the appendages
 - x. Appendage one
 - (x) Appendage with sterile terminal branchlets, antherids in short series near its base
Rhadinomyces T. 305, L. 501
 - (y) Appendage with fertile terminal branchlets bearing antherids laterally
Eucorethromyces T. 2: 433
 - y. Appendages forming a tuft, antherids on lateral branchlets
Corethromyces T. 303, L. 501
- (2) Antherids not in definite series on the appendages
 - (a) Receptacle 2-celled
 - x. Basal cell with rhizoids
 - (x) A single receptacle from each rhizoid base
Rhizomyces T. 307, L. 502
 - (y) Several receptacles from a common rhizoid base
Moschomyces T. 368, L. 504
 - y. Basal cell not from a rhizoid
 - (x) Appendage single
 - m. Receptacle of 2 superposed cells
 - (m) Basal cell spheric, penetrating by a long filament
Ceraiomycetes T. 3: 410
 - (n) Basal cell elongate
Sphaleromyces T. 365, L. 504
 - n. Receptacle of a series of superposed cells
Ectinomyces T. 5: 26
 - (y) Appendages several to many
 - m. Appendages and perithecium in a whorl
Compsomyces T. 366, L. 504
 - n. Appendages in a row
Clematomyces T. 2: 439
 - (b) Receptacle more than 2-celled
 - x. Receptacle of seriate, regularly superposed cells
 - (x) Plant bilaterally symmetrical
Diplomyces T. 357, L. 503
 - (y) Plant asymmetrical
 - m. Receptacle of two contiguous and united rows
 - (m) A single basal cell
Rhachomyces T. 358, L. 504

(n) Basal and subbasal cell present

Distichomyces T. 6: 308

n. Receptacle of a single row *Chaetomyces* T. 364, L. 504

y. Receptacle more or less parenchyma-like, at most only part of the cells superposed in series

(x) Appendages all on one side *Laboulbenia* T. 308, L. 502

(y) Appendages on two sides *Rickia* 16: 689

(z) Appendages completely surrounding the perithecium

Teratomyces T. 354 L. 502

II. Antherozoids exogenous, i. e., produced terminally or laterally on the appendages as naked cells

1. Receptacle large, very many-celled, parenchyma-like

a. Perithecium with six wall cells in each row

(1) Base of trichogyne persistent as a one-celled appendage

Caenomyces T. 4: 44

(2) Base of trichogyne not persistent as an appendage

Zodiomyces T. 371, L. 504

b. Perithecium with 9-10 wall cells in each row

Euzodiomyces T. 2: 449

2. Receptacle of a series of superposed cells

a. Appendage single

Ceratomyces T. 372, L. 505

b. Appendages several

Coreomyces T. 5: 56

The genus *Misgomyces* T. 2: 443 has not been included in the key owing to the fact that its antherids are unknown; it is very closely related, apparently, to *Laboulbenia*.

Order 8. SPHAERIALES

Mycelium sometimes superficial and abundant, often forming a thallus with algae, but usually scanty and imbedded in the matrix, the threads branched and septate; propagation by means of conidia borne on branches of the mycelium, or by means of pycnidia; reproduction resulting in a globose, flask-shaped or flattened perithecium, with a round mouth or ostiole except in the simpler forms, in which appendages are also often found; asci usually 8-spored and with paraphyses; spores hyaline, yellowish or brown, one to many-celled.

Family 15. ERYLIBACEAE

I: 1, 9: 364, II: 253, 14: 404, 17: 526

Mycelium white, cobwebby, superficial, penetrating the epiderm by means of haustoria; propagation by chains of conidia cut off from upright simple branches; perithecium without mouth, membranous, regularly with simple or modified appendages, often imbedded in the mycelium; ascus one to several, globose to ovoid, 2-8-spored, without paraphyses; spores usually 1-celled, hyaline.

Hyalosporae

Spores 1-celled, hyaline

I. Perithecium with one ascus

1. Appendages simple

Sphaerotheca 1: 3

2. Appendages dichotomously branched

Podosphaera 1: 2

II. Perithecium with several asci

I. Appendages present

a. Appendages simple, thread-like

Erysibe 1: 15

b. Appendages branched or otherwise modified

(1) Appendages dichotomously branched

Microsphaera 1: 10

(2) Appendages modified but not branched

(a) Appendages stiff and bristle-like

x. Appendages numerous, not swollen at base

Pleochaete 1: 9

y. Appendages few, swollen at base

Phyllactinia 1: 5

(b) Appendages coiled at tip

Uncinula 1: 6

2. Appendages absent; perithecium surrounded by the mycelium

Erysibella 1: 23**Dictyosporae**

Spores usually hyaline, muriform

A single genus

Saccardia 1: 24**Family 16. PERISPORIACEAE**

1: 24, 9: 371, 11: 253, 14: 462, 16: 398, 17: 524

Mycelium superficial, dark, filamentous, sometimes lacking, rarely forming a firm stroma; conidia or pycnidia rarely present; perithecium without a mouth, or opening irregularly, usually globose, membranous or coriaceous, rarely carbonous, appendages usually lacking; asci mostly numerous, clustered, more or less cylindric, mostly 8-spored, paraphyses regularly lacking; spores various.

Hyalosporae

Spores 1-celled, hyaline or yellowish

I. Perithecia bright-colored, yellow or reddish, rarely white

1. Asci 8-spored

a. Perithecia with setae, or hairs

(1) With long rigid setae

Chaetotheca 11: 254

(2) With many hairs, immersed in a dense subicle

Cryptothecium 14: 465

b. Perithecia glabrous

(1) Spores with an unequal samariform appendage

Samarospora 11: 254

(2) Spores not appendaged

(a) Spores verrucose

Anixiopsis 14: 464

(b) Spores smooth

x. Conidiophores branched

Allescheria 14: 464

y. Conidiophores simple, swollen at tip

Eurotium 1: 25

(Kickxella 9: 372)

Pisomyxa 1: 29

2. Asci many-spored

II. Perithecia dark or black, spores hyaline

1. Asci 2-8-spored

- a. Ascus single Cystotheca 16:407
- b. Asci several or many
 - (1) Perithecia numerous in setose stroma-like cups Lasiobotrys 1: 29
 - (2) Perithecia not in cups
 - (a) Perithecia globose Meliolopsis 1: 68
 - (b) Perithecia applanate Asterula 1: 47
- 2. Asci many-spored
 - a. Asci many Apiosporium 1: 30
 - b. Ascus single Monascus 9: 373

III. Perithecia brown, then black, spores yellow

Anixia 1:34

Phaeosporae

Spores 1-celled, dark

- I. Asci capitate on tips of branched hyphae Cephalotheca 1: 36
- II. Asci sessile or on simple stalks
 - I. Perithecia with appendages
 - a. Spores globose, conglobate
 - (1) Appendages closely spiral, convolute Pleurascus 16:1123
 - (2) Appendages flexuose-tortuose Arachnomyces 17: 532
 - b. Spores ellipsoid
 - (1) Appendages several times branched Ascotricha 1: 37
 - (2) Appendages circinate at apex Magnusia 1: 38
 - 2. Perithecia without appendages
 - a. Perithecia hairy or setose Chaetomidum 1: 39
 - b. Perithecia glabrous
 - (1) Perithecia innate upon a radiate subicle Asteronia 1: 47
 - (2) Perithecia not on a radiate subicle
 - (a) Spores at first conglobate Laaseomyces 16:405
 - (b) Spores free from the first
 - x. Growing on lichen thalli Orbicula 1: 38
 - y. Growing on roots Thielavia 1: 39

Hyalodidymae

Spores 2-celled, (1-septate), hyaline

- I. Asci 8-spored
 - 1. Cells of spore separating easily Neorehmia 17: 536
 - 2. Cells of spore not separating
 - a. Perithecia on a radiate subicle Asterella 1: 42
 - b. Perithecia on a uniform subicle Dimerosporium 1: 51
- II. Asci many-spored Pampolysporium 16: 411

Phaeodidymae

Spores 1-septate, dark when mature, rarely yellowish

- I. Perithecia on a subicle
 - 1. Subicle radiate; perithecia lenticular Asterina 1: 39
 - 2. Subicle uniform, dematium-like; perithecia globose

- a. Perithecia without basal setae
 - (1) Asci several or many Dimerium 1: 51, 17: 537
 - (2) Ascus one, rarely two Balladyna 16: 411
 - b. Perithecia with basal setae Kusanobotrys 17: 881
- II. Perithecia not seated on a subicle
- 1. Perithecia gelatinous when wet, honey-yellow Englerula 17: 529
 - 2. Perithecia membranous or carbonous, usually dark
 - a. Spores apiculate-appendaged, very large Zopfia 1: 54
 - b. Spores not appendaged, small or medium
 - (1) Spores smooth
 - (a) Spores elongate-oblong, very large Richonia 9: 379
 - (b) Spores subtrapeziform, small Argynna 14: 470
 - (c) Spores ellipitic, medium Parodiella 1: 717, 9: 409
 - (2) Spores spiny or roughened
 - (a) Perithecium irregularly dehiscent; asci not long-stalked Marchaliella 11: 257
 - (b) Perithecia regularly areolate-dehiscent; asci long-stalked Testudina 9: 378

Hyalophragmiae

Spores with 2 or more cross walls, hyaline

- I. Perithecia on a radiate subicle Asteridium 1: 49
- II. Perithecia on a uniform subicle
 - 1. Subicle effuse, dematium-like; perithecium closed Zukalia 9: 431
 - 2. Subicle fibrous, subcrustose; perithecium perforate Perisporiopsis 17: 544

Phaeophragmiae

Spores 2-several-septate, dark

- I. Perithecia on a radiate subicle Meliola 1: 60
(Limacinia 14: 474)
- II. Subicle uniform or absent
 - 1. Spores separating at the joints
 - a. Paraphyses lacking Perisporium 1: 55
 - b. Paraphyses present Schenckia 11: 268
 - 2. Spores not separating Perisporina 17: 545

Hyalodictyae

Spores muriform, hyaline

- I. Perithecia on a subicle, closed Zukaliopsis 17: 554

Phaeodictyae

Spores muriform, dark

- I. Perithecia globose
 - 1. Spores with an appendage at each end Ceratocarpia 14: 474
 - 2. Spores without appendages

- a. Subicle radiate Pleomeliola 1: 70, 17: 554
- b. Subicle lacking Cleistothece 11: 270
- II. Perithecia applanate Cookella 1: 71

Scolecosporae

Spores filiform, septate or continuous, hyaline or subhyaline

- I. Perithecium opening by a small pore Saccardomyces 17: 530
- II. Perithecium without a pore
 - 1. Subicle radiate, paraphyses present Ophiomeliola 16: 416
 - 2. Subicle uniform, paraphyses absent Hyaloderma 9: 437

Family 17. CAPNODIACEAE

1: 73, 9: 438, 11: 270, 14: 476, 17: 555

Perithecia vertically elongate, clavate or cylindric, obtuse or acute, simple or branched, usually lacinate-dehiscent at the apex, on a thick black mycelium, which is rarely absent.

- I. Subicle crustose
 - 1. Spores 1-celled, globose Capnodiella 1: 74
 - 2. Spores 3-4-septate, dark Capnodaria 1: 74
 - 3. Spores muriform, dark Capnodium 1: 73, 80
- II. Subicle very thick, spongy Scorias 1: 83
- III. Subicle sparse or lacking
 - 1. Spores 1-celled, hyaline Capnodiopsis 17: 555
 - 2. Spores 2-celled, hyaline; perithecium gelatinous Seuratia 17: 558

Family 18. SPHAERIACEAE

1: 88, 2: 1, 9: 4, 11: 271, 14: 478, 16: 417, 17: 560

Mycelium scanty and immersed, or often producing a stroma, rarely a subicle; perithecia typically globoid, often drawn out into a beak, membranous, coriaceous, or carbonous, brown or black, dehiscing by a round pore or ostiole, single, cespitose or composite in a stroma; in the latter case each perithecium is distinct, not merely a locule in the stroma; asci usually numerous, elongate, usually paraphysate; spores various.

Allantosporae

Spores 1-celled, obtuse, curved-oblong, hyaline or olivascant

- I. Perithecia sparse or cespitose
 - 1. Ostiole central, very short
 - a. Asci 8-spored
 - (1) Perithecia covered
 - (a) Perithecia minute, glabrous Massalongiella 1: 89
 - (b) Perithecia largish, strigose-pilose Enchnoa 1: 89
 - (2) Perithecia subsuperficial
 - (a) Perithecia globose, never collapsing Bizzozera A: 24, 9: 445

- (b) Perithecia collapsing, becoming cup-shaped
 - x. Perithecia gregarious **Coelosphaeria** 1: 91
 - y. Perithecia cespitose **Nitschkea** 11: 272
- b. Asci many-spored **Fracchiacea** 1: 93
- 2. Ostiole central, papillate **Neoarcangelia** 16: 419
- 3. Ostiole lateral, conic **Pleurostoma** 1: 95
- II. Perithecia composite, typically in a stroma
 - 1. True stroma lacking; perithecia heaped together between bark and wood
 - a. Asci 8-spored; ostiole short or long **Calosphaeria** 1: 95 (16: 419, 421)
 - b. Asci many-spored; ostiole very short **Coronophora** 1: 103
 - 2. True stroma present; perithecia immersed in bark or wood
 - a. Stroma formed by the changed matrix
 - (1) Stroma valsous, i. e., perithecia in a circle
 - (a) Asci 4-8-spored
 - x. Perithecia usually 4, never more than 6, in each stroma **Quaternaria** 1: 106
 - y. Perithecia many, 8-30, in most stromata at least
 - (x) Perithecia circinate or monostichous, ostiole entire; asci subsessile. **Valsa** 1: 108
 - (y) Perithecia monostichous or polystichous, ostiole not entire; asci stipitate **Eutypella** 1: 145, 17: 569
 - (b) Asci many-spored **Valsella** 1: 158
 - (2) Stroma eutypeous, i. e., broadly and indefinitely effuse
 - (a) Asci 8-spored
 - x. Stroma conspicuous, cortical or woody **Eutypa** 1: 162, 17: 569
 - y. Stroma more or less obsolete
 - (x) Stroma woody; ostiole largish; spores subfuscous **Endoxyla** 1: 181
 - (y) Stroma cortical; ostiole small; spores subhyaline **Cryptosphaeria** 1: 182
 - (b) Asci many-spored
 - x. Stroma manifest, cortical or woody **Cryptovalsa** 1: 187
 - y. Stroma obsolete, cortical **Cryptosphaerella** 1: 186
 - b. Stroma different from the substance of the matrix
 - (1) Asci 8-spored; stroma effuse or disciform **Diatrype** 1: 191, 9: 480
 - (2) Asci many-spored; stroma verruciform **Diatrypella** 1: 200

Hyalosporae

1: 407, A 58, 9: 577, 11: 289, 14: 515, 16: 452, 17: 573

Spores 1-celled, hyaline or nearly hyaline, ovoid, oblong or fusoid, rarely irregular or stellate, not allantoid.

- I. Perithecia single or separate
 - 1. Perithecia beaked or with a stellate ostiole
 - a. Perithecia subcarbonous

- (1) Spores normal, i. e., not modified
 - (a) Perithecia superficial, glabrous or dark hairy
Ceratostomella 1: 408
 - (b) Perithecia innate-erumpent, yellow-hairy
Camptosphaeria 1: 413
- (2) Spores with a ring-like appendage *Rostrella* 17: 609
- b. Perithecia submembranous, usually phyllogenous
 - (1) Ostiole black, not stellate *Gnomoniella* 1: 413
 - (2) Ostiole white, stellate with black wartlike appendages
Rinia 17: 591
- 2. Perithecia not beaked
 - a. Perithecia covered
 - (1) Asci 1-2- or 4-8-spored
 - (a) Paraphyses present
Physalospora 1: 433
(incl. *Stigmatula* 1: 543)
 - (b) Paraphyses lacking
 - x. Spores long-caudate
 - (x) Spores caudate at one end only
Urcospora 1: 448
 - (y) Spores caudate at both ends *Urosporella* 14: 523
 - y. Spores not caudate
 - (x) Asci 1-2-spored
 - m. Perithecia perforate
†*Diplosporisor* 11: 292
(*Geminispora*)
 - n. Perithecia closed, then splitting irregularly at apex
Spolverinia 17: 577
 - (y) Asci 4-8-spored
 - m. Perithecia lenticular, perforate
Laestadia 1: 420
 - n. Perithecia globose, papillate
Phomatospora 1: 432
 - (2) Asci many-spored
 - (a) Perithecia glabrous *Ditopella* 1: 450
 - (b) Perithecia strigose-pilose *Polytrichia* 1: 451
 - b. Perithecia superficial
 - (1) Perithecia smooth, i. e., glabrous
 - (a) Spores stellate *Inzengaea* 9: 610
 - (b) Spores not stellate
 - x. Perithecia on a dark crustose subicle
Pilgeriella 16: 464
 - y. Perithecia not on a subicle
 - (x) Perithecia surrounded by dark hyphae at base
Guignardiella 16: 465
 - (y) Perithecia without dark hyphae at base
Wallrothiella 1: 455
(incl. *Zignoina* 2: 219)
 - (2) Perithecia hairy
 - (a) Asci 8-spored *Trichosphaeria* 1: 452
 - (b) Asci 16-spored *Trichosphaerella* 9: 604

II. Perithecia upon or within a stroma or subicle

1. Perithecia beaked **Glomerella** 16: 452, 17: 573
2. Perithecia not beaked
 - a. Perithecia immersed in a subicle **Scortechinia** A 68, 9: 604
 - b. Perithecia in or upon a stroma
 - (1) Stroma radiate, phyllogenous **Trabutia** 1: 449
 - (2) Stroma not radiate, usually caulicole
 - (a) Necks of perithecia wanting, stroma disk-like
 Botryosphaeria 1: 456
(incl. **Gibellia** A 406, 9: 608 and
Coutinia 17: 589)
 - (b) Necks of perithecia present, stroma valsiform
 Cryptosporella 1: 466
(incl. **Diaporthopsis** 9: 610)

Phaeosporae

1: 214, 9: 481, 11: 278, 14: 489, 16: 427, 17: 593

Spores 1-celled, colored, usually yellowish or brown, ovoid, oblong or fusoid

I. Perithecia separate, at least without a stroma

1. Covered, often erumpent
 - a. Asci 1-spored **Haplosporium** A 40, 9: 495
 - b. Asci 4-8-spored
 - (1) Perithecia covered by the blackened adhering epiderm
 Anthostomella 1: 278
 - (2) Perithecia erumpent with a stellate volva
 Astrocystis 1: 293
 - c. Asci many-spored
 - (1) Spores smooth **Müllerella** A 40, 9: 495
 - (2) Spores verrucose **Mesnieria** 16: 440
2. Superficial or subsuperficial
 - a. Perithecia long-beaked
 - (1) Spores lunulate; fimicole **Micrascus** A 37, 9: 483
 - (2) Spores globose to elliptic; not fimicole
 Ceratostoma 1: 215
 - b. Perithecia not beaked
 - (1) Perithecia submembranous
 - (a) Spores with a mucous sheath or tail; usually fimicole
 - x. Asci 4-8-spored
 - (x) Spores with a hyaline tail or cauda
 Sordaria 1: 230
 - (y) Spores with a mucous sheath
 - m. Perithecia sparse **Hypocopra** 1: 240
 - n. Perithecia densely aggregate, almost stroma-like
 Coprolepa 1: 248
 - y. Asci many-spored, spores usually caudate
 Philocopra 1: 249
 - (b) Spores without mucous sheath or tail
 - x. Perithecia with simple setae, asci persistent
 Helminthosphaeria 1: 230

y. Perithecia with branched, hooked or spiral setae; asci diffluent

(x) Spores subglobose to elliptic

Chaetomium 1: 220

(y) Spores triangular

Bommerella A 38, 9: 486

(2) Perithecia typically carbonous

Rosellinia 1: 252

(incl. **Pleosporopsis** 14: 501 and

Tympanopsis 11: 283

(3) Perithecia coriaceous, firm, ascending-elongate

Bombardia 1: 277

II. Perithecia in a stroma

1. Stroma immersed, somewhat woody; perithecia membranous

Anthostoma 1: 293

2. Stroma superficial, carbonous or leathery; perithecia carbonous

a. Stroma terete, fruticose or filiform

(1) Stroma fimicole

†**Pedisordaria** 14: 494

(**Podosordaria**)

(2) Stroma not fimicole

(a) Stroma with a single perithecium at apex

Capnodiella 17: 621

(b) Stroma containing many perithecia

x. Perithecia immersed laterally

(x) Stroma fruticose, clavate or filiform

Xylaria 1: 309

(incl. **Kretschmaria** 9: 565)

(y) Stroma disk-like or cupulate above

Xylariodiscus 16: 449

y. Perithecia immersed vertically

(x) Perithecia immersed annulately about the truncate apex

Camillea 1: 346

(y) Perithecia crowded beneath an operculate disk

Henningsinia 16: 450

b. Stroma effuse, globose or cupulate, adnate or substipitate

(1) Conidia superficial on the young stroma

(a) Stroma usually fimicole

Poronia 1: 348

(b) Stroma not fimicole

x. Stroma concentrically zonate

Daldinia 1: 393

y. Stroma not concentrically zonate

(x) Stroma repand-pulvinate, somewhat hollow

Ustilina 1: 351

(y) Stroma solid

m. Stroma subglobose, hemispheric or obpiriform

(m) Stroma not modified with squarrose papery membranes

Penzigia 9: 567

(n) Stroma modified by squarrose papery membranes

Squamotubera 17: 620

n. Stroma effuse

(m) Perithecia immersed, necks rather long

Bolinia 1: 352

(n) Perithecia innate-prominent, necks lacking

Hypoxylum 1: 352

(2) Conidia arising beneath the upper layer of the disk-like or cupulate stroma

(a) Perithecia flask-shaped

Nummularia 1: 395

(b) Perithecia long-cylindric

Solenoplea 17: 619

Hyalodidymae

1: 475, 9: 611, 11: 295, 14: 525, 16: 468, 17: 635

Spores 1-septate (2-celled), hyaline or subhyaline, ovoid, oblong or fusoid

I. Perithecia separate

1. Perithecia covered or nearly so

a. Perithecia beaked, submembranous

(1) Asci 8-spored

Gnomonia 1: 561

(2) Asci many-spored

Rehmiella 9: 676

b. Perithecia not beaked

(1) Asci 8-spored

(a) Perithecia in a phyllogenous pseudostroma

Hypoaspilina 2: 190

(b) Perithecia not in a phyllogenous pseudostroma

x. Paraphyses lacking

Sphaerella 1: 476

(incl. *Lizoniella* 17: 661)

y. Paraphyses present

(x) Spores surrounded with mucus

Massarinula 14: 536

(y) Spores not surrounded with mucus

m. Spores septate near the base

Apiospora 1: 539

(incl. *Stigmatea* 1: 541)

n. Spores septate near the middle

(m) Perithecia smooth

Didymella 1: 545

(incl. *Stigmatea* 1: 545)

(n) Perithecia long-hairy

Arcangelia 9: 696

(2) Asci 16-24-spored

(a) Asci 16-spored

Mycosphaerella 9: 659

(b) Asci 24-spored

Hariotia 9: 672

2. Perithecia superficial or nearly so

a. Perithecia beaked

(1) Spores expelled in a mucous mass **Spumatoria 16: 1134**

(2) Spores not expelled in a mucous mass

Lentomita 1: 584

b. Perithecia not beaked

(1) Perithecia smooth

(a) Asci 8-spored

x. Paraphyses lacking

(x) Perithecia borne in lichen thalli

Pharcidia 9: 676, 17: 635

(incl. *Epicymatia* 1: 570)

(y) Perithecia not in lichen thalli

Bertia 1: 581

y. Paraphyses present

- (x) Spores with a mucous layer produced into a spatulate ring
-
- Pteridiospora*
- 14: 539

(y) Spores without a mucous layer

- m. Spores ellipsoid to fusoid
- Melanopsamma*
- 1: 575

- n. Spores botuliform
- Thaxteria*
- 9: 687

- (b) Asci 16-spored
- Pseudolizonia*
- 9: 682

(2) Perithecia with hairs or bristles

(a) Paraphyses lacking

- x. Perithecia lichenicole
- Echinothecium*
- 16: 484

- y. Perithecia typically on leaves, rarely on stems

Venturia 1: 586

- (b) Paraphyses present
- Eriosphaeria*
- 1: 597

Othiella 1: 739, 17: 662

II. Perithecia cespitose

III. Perithecia in, or rarely upon, a stroma

1. Stroma scanty

- a. Perithecia smooth
- Gibbera*
- 1: 599

- b. Perithecia setose
- Cacosphaeria*
- 9: 699

2. Stroma well-developed

a. Stroma white or colored

- (1) Stroma white and soft
- Melchiora*
- 14: 538

- (2) Stroma bright yellow
- Endothia*
- 1: 601

b. Stroma black, rarely yellowish

- (1) Perithecia botryose, erumpent, superficial
-
- Myrmaecium*
- 1: 600

(2) Perithecia immersed

- (a) Spores septate near the base
- Aplacodina*
- 16: 485

- (b) Spores septate near the middle

x. Stroma valsa-like

- (x) Conidial stage
- Melanconium*

Melanconis 1: 602

- (y) Pycnidial stage
- Rabenhorstia*

Hercospora 1: 605

- (z) Pycnidial stage
- Phoma*
- Diaporthe*
- 1: 606

y. Stroma eutype-like or diatrype-like

Euporthe 1: 631, 1: 662*Phaeodidymae*

1: 701, 9: 723, 11: 312, 14: 551, 16: 408, 17: 675

Spores 1-septate, dark, fuliginous to brown, ovoid, oblong or fusoid

I. Perithecia separate

1. Perithecia covered

- a. Paraphyses lacking
- Phaeosphaerella*
- 9: 723
-
- (incl.
- Lizonia*
- 1: 574)

b. Paraphyses present

(1) Asci 8-spored

- (a) Spores surrounded by a hyaline sheath

Massariella 1: 716

- (b) Spores without a sheath **Didymosphaeria** 1: 701
 (2) Asci many-spored **Tichothecium** 17: 676, 9: 723
2. Perithecia superficial or immersed at the base
- a. Subicle present
- (1) Perithecia beaked
- (a) Paraphyses lacking **Rhynchomeliola** A. 127, 9: 751
 (b) Paraphyses present **Gibellina** A: 413, 9: 740, 11: 317
- (2) Perithecia not beaked
- (a) Perithecia glabrous **Neopeckia** A: 26, 9: 749
 (b) Perithecia setose **†Dimerosporis** 17: 686
 (**Dimerosporiopsis**)
- b. Subicle lacking
- (1) Perithecia beaked
- (a) Asci paraphysate **Rhynchostoma** 1: 730
 (b) Asci not paraphysate **†Dysrhynchis** 17: 689
 (**Henningsomyces**)
- (2) Perithecia not beaked
- (a) Perithecia glabrous
- x. Perithecia carbonous **Amphisphaeria** 1: 718
- y. Perithecia membranous or submembranous
- (x) Asci 8-spored
- m. Perithecia globose, fimicole **Delitschia** 1: 732
- n. Perithecia cupulate, not fimicole
- (y) Asci many-spored **Gaillardella** 14: 559
Delitschiella 17: 688
Protoventuria A: 113, 9: 741
- (b) Perithecia setose
- II. Perithecia cespitose or forming a crust, not stromate
1. Perithecia forming an effuse crust **Parodiella** 1: 717
2. Perithecia in groups
- a. Perithecia foliicole **Pseudotthia** 16: 507
 b. Perithecia lichenicole **Sorothelia** A: 122, 9: 728
 c. Perithecia ramicole **Othia** 1: 735
- III. Perithecia in a stroma
1. Spore with a mucous covering **Massariovalsa** 9: 755
2. Spore without a mucous covering
- a. Stroma erect, subterete **Xylobotryum** 11: 319, 14: 20
 (**Trachyxylaria** 16: 510, **Xyloceras** 17: 690)
- b. Stroma flat, round or cushion-like, immersed or emerging
- (1) Paraphyses lacking
- (a) Stroma bearing conidia of **Melanconium**
- Melanconiella** 1: 740
- (b) Stroma without conidia **Camarops** 1: 753
- (2) Paraphyses present
- (a) Stroma phyllogenous; perithecia superficial **Licopolia** 16: 508

(b) Stroma not phylogenous

x. Perithecia valsoid

Valsaria 1: 741

y. Perithecia eutypoid

Endoxylina 11: 318**Hyalophragmiae**

2: 152, 9: 824, 11: 332, 14: 581, 16: 528, 17: 692

Spores 2-several-septate, hyaline, oblong to cylindric

I. Perithecia separate**1. Perithecia covered or erumpent****a. Perithecia beaked**

(1) Perithecia xylogenous, carbonous

Ceratosphaeria 2: 227

(2) Perithecia phylogenous, submembranous

(a) Spores separating into halves

Cryptoderis 2: 229

(b) Spores not separating into halves

Gnomoniopsis 17: 716**b. Perithecia not beaked**

(1) Spores with a mucous covering

Massarina 2: 153

(2) Spores without a mucous covering

(a) Perithecia submembranous, pseudostroma lacking

x. Paraphyses lacking

Sphaerulina 2: 186

y. Paraphyses present

(x) Spores muticate

Metasphaeria 2: 156(incl. **Charrinia** 14: 585)

(y) Spores with a seta or cusp at either end

Ceriosporella 2: 184, 14: 19

(b) Perithecia membranous, in a leafy pseudostroma

Hypospila 2: 189

(c) Perithecia subcarbonous, pseudostroma lacking, spores 20-30-septate

Saccardoella 2: 190**2. Perithecia superficial or subsuperficial****a. Perithecia glabrous**

(1) Perithecia stalked, covered with a bright powder

Bombardiastrum 11: 338

(2) Perithecia not stalked, powdery covering lacking

(a) Spores 2-septate

Melomastia 2: 213

(b) Spores typically 3 or more-septate

x. Perithecia carbonous, black

Zignoella 2: 214(incl. **Bertiella** 17: 708)

y. Perithecia softish, greenish or reddish

Winterina 14: 589**b. Perithecia hairy or byssisede**

(1) Perithecia of one color

(a) Spores chain-like, separating into globose joints

Hormosperma 14: 591

(b) Spores not separating into joints

x. Perithecia carbonous, large

(x) Spores cylindric, elongate

Lasiosphaeria 2: 191

- (y) Spores fusoid, somewhat short
Enchnosphaeria 2: 205
- y. Perithecia submembranous, small
Acanthostigma 2: 207
- z. Perithecia fleshy-coriaceous, hairs fascicled on a central disk
Actiniopsis 16: 543
- (2) Perithecia of two colors, usually reddish at vertex
Herpotrichia 2: 211
- II. Perithecia cespitose, erumpent, superficial, membranous
Baumiella 17: 708
- III. Perithecia in a stroma or on a subicle
1. Perithecia on a subicle; asci many-spored, paraphyses lacking
Sydowia 11: 341
2. Perithecia in a stroma
- a. Stroma lichenicole, white, lanose
Dichosporium 16: 542
- b. Stroma not lichenicole, black
- (1) Stroma immersed
Calospora 2: 231
- (2) Stroma superficial
- (a) Stroma lentiform, adnate to the pycnidium
Melanops 2: 231
- (b) Stroma pulvinate or hemispheric
Holstiella 14: 593
- Phaeophragmiae**
- 2: 1, 9: 759, 11: 319, 14: 561, 16: 510, 17: 718
- Spores 2-several-septate, olive, melleous or fuliginous, oblong to cylindric
- I. Perithecia separate
1. Perithecia covered or erumpent
- a. Spores with a mucous covering
Massaria 2: 2
- b. Spores without a mucous covering
- (1) Perithecia depressed beneath a black cortical clypeus
Clypeosphaeria 2: 90
- (2) Perithecia without a stromatic clypeus
- (a) Spores muticate
- x. Paraphyses lacking
Phaeospora 16: 519
- y. Paraphyses present
- (x) Cells of spore concolorous
- m. Perithecia glabrous
- (m) Perithecia rostrate
Rhynchosphaeria 16: 524
- (n) Perithecia not beaked
- r. Spores cylindric, connected in pairs in the ascus
Leptosphaeropsis 9: 770, 11: 321
Leptosphaeria 2: 13
 (incl. **Cladosphaeria 11: 321, Chitonospora 9: 797**)
- n. Perithecia setose or hairy
Pocosphaeria 11: 325
- (y) Cells of spore discolorous
Heptameria 2: 88
 (incl. **Passeriniella 11: 326**)
- (b) Spores caudate or cuspidate
- x. Spores caudate at base
Rebentischia 2: 12
- y. Spores cuspidate at both ends
Ceriospora 14: 19, 2: 184

2. *Perithecia* superficial or subsuperficiala. *Perithecia* glabrous(1) *Phytophilous*

(a) Spores finally separating into joints

x. Joints 1-celled

Ohleriella 17: 736

y. Joints 2-celled

Ohleria 2: 96

(b) Spores not separating into joints

x. *Perithecia* smooth or nearly so

(x) Spores biconic with a mucous covering

Caryospora 2: 122

(y) Spores medium, no mucous covering

m. Ostiole narrow

Melanomma 2: 98

n. Ostiole widely open

Trematosphaeria 2: 115y. *Perithecia* verrucose*Stuartella* 2: 123(2) *Fimicole**Sporormia* 2: 123b. *Perithecia* pilose or byssisede(1) *Perithecia* concolorous

(a) Spores cylindric, elongate

**Lasiosphaeria* 2: 194

(b) Spores fusoid, somewhat short

Chaetosphaeria 2: 92(2) *Perithecia* discolorous at the vertex**Herpothrix* 2: 211II. *Perithecia* cespitose, erumpent*Gibberidea* 2: 132III. *Perithecia* in a stroma

1. Stroma lichenicole

†*Trematosphaeria* 17: 735
(*Trematosphaeriopsis*)

2. Stroma not lichenicole

Titania 9: 823

b. Asci 4-8-spored

(1) Stroma valsa-like, innate

(a) Asci 4-spored

Aglaospora 2: 133

(b) Asci 6-8-spored

x. Acervuli covered with a reddish or yellowish bran

Thyridaria 2: 140

y. Acervuli not covered with a bran

Pseudovalsa 2: 135

(2) Stroma eutype-like, i. e., woody, effuse

(a) Paraphyses lacking

Cryptosphaerina 16: 521

(b) Paraphyses present

Kalmusia 2: 142

(3) Stroma pulvinate, emerging

Melogramma 2: 144**Hyalodictyae**

2: 238, 11: 349, 9: 872, 14: 611, 16: 554, 17: 743

Spores transversally and longitudinally septate, usually muriform,
hyaline, oblong to fusoid.I. *Perithecia* separate1. *Perithecia* covered or erumpent

a. Asci 8-spored

(1) Paraphyses lacking

- (a) Spores separate **Pleosphaerulina** 11: 350
 - (b) Spores in a common mucus **Diplothea** 16: 555
 - (2) Paraphyses present
 - (a) Perithecia covered by a stromatic clypeus **Peltosphaeria** 9: 898
 - (b) Perithecia without a clypeus **Catharinea** 11: 350
 - b. Asci 16-spored; perithecia setose **Capronia** 2: 288
 - 2. Perithecia superficial
 - a. Perithecia glabrous
 - (1) Perithecia softish, greenish or reddish **Winteria** 14: 589
 - (2) Perithecia hard, black
 - (a) Perithecia beaked **Rhamphoria** 2: 307
 - (b) Perithecia not beaked **Tichospora** 11: 351
 - b. Perithecia setose or hairy
 - (1) Perithecia globose, setose and byssisede **Boerlagella** 14: 612
 - (2) Perithecia turbinate, disk with fascicled hairs **Ophiodictyum** 16: 555
 - II. Perithecia in a stroma
 - 1. Perithecia projecting, setose **Berlesiella** 9: 914
 - 2. Perithecia immersed
 - a. Stroma effuse, eutypeous **Thyridella** 11: 351
 - b. Stroma circular, valvous **Clethruidium** 11: 350, 2: 332
- Phaeodictyae**
- 2: 238, 9: 872, 11: 341, 14: 594, 16: 544, 17: 746.
- Spores muriform, yellow to brown, oblong to fusoid.
- I. Perithecia separate
 - 1. Perithecia covered or erumpent
 - a. Spores with a mucous layer **Pleomassaria** 2: 239
 - b. Spores without a mucous layer
 - (1) Perithecia without a phyllogenous pseudostroma
 - (a) Asci 1-2-spored **Julella** 2: 289
 - (b) Asci 8-spored
 - x. Paraphyses lacking **Leptosphaerulina** 17: 746
 - y. Paraphyses present
 - (x) Perithecia covered by a black stromatic clypeus **Phaeopeltosphaeria** 11: 344
 - (y) Perithecia not covered by a black stromatic clypeus
 - m. Perithecia glabrous
 - (m) Spores muticate
 - r. Perithecia coriaceous **Karstenula** 2: 240
 - s. Perithecia membranous
 - (r) Spores rounded or terete
 - h. Wall of perithecium single **Pleospora** 2: 241

- i. Wall of perithecium double
Scleroplea 16: 548
 - (s) Spores compressed, flattened
 - h. Perithecia smooth **Clathrospora 9: 894**
 - i. Perithecia hairy ***Comoclathris**
 - (n) Spores appendaged at both ends
Delacourea 2: 288
 - n. Perithecia setose, especially about ostiole
Pyrenophora 2: 277
 - (2) Perithecia in a phyllogenous pseudostroma
Isothea 2: 290
 - 2. Perithecia superficial
 - a. Phytogenous
 - (1) Perithecia soft, light colored **Winteria 14: 589**
 - (2) Perithecia carbonous, black
 - (a) Perithecia corrugate-tuberculate
Crotonocarpia 2: 306
 - (b) Perithecia not corrugate
 - x. Perithecia glabrous **Tichospora 2: 290**
 - y. Perithecia hairy **Pleosphaeria 2: 304**
 - b. Fimicole; each spore of 3 10-celled chains
Pleophragmia 2: 307
 - II. Perithecia cespitose **Cucurbitaria 2: 307**
 - III. Perithecia in a stroma
 - 1. Spores with a mucous layer **Montagnula 14: 603**
 - 2. Spores without a mucous layer
 - a. Stroma effuse, eutypeous **Thyridium 2: 323**
 - b. Stroma valsous **Fenestella 2: 325**
- Scolecosporae**
- 2: 337, 9: 923, 11: 351, 14: 613, 16: 557, 17: 767
- Spores linear or filiform, continuous or septate, hyaline or yellowish.
- I. Perithecia separate
 - 1. Perithecia covered or erumpent
 - a. Perithecia covered by a phyllogenous clypeus
Linospora 2: 354
 - b. Perithecia not covered by a clypeus
 - (1) Perithecia beaked **Ophiognomonina 17: 776**
 - (2) Perithecia not beaked
 - (a) Perithecia glabrous
 - x. Spores muticate
 - (x) Spores in a hyaline sheath **Ophiomassaria 11: 353**
 - (y) Spores not in a hyaline sheath
 - m. Perithecia globose to conoid
Ophiobolus 2: 337
 - n. Perithecia cylindric, truncate
Cylindrina A: 421, 9: 937
 - y. Spores awned at each end

- (x) Perithecia very large, disk-form, corticole
Therrya 2: 358
- (y) Perithecia small, globose, on grasses and palms
Dilophia 2: 357
Ophiochaete 11: 353
- (b) Perithecia hairy
2. Perithecia superficial or immersed at base
a. Perithecia beaked
b. Perithecia not beaked
 (1) Perithecia fimicole
 (2) Perithecia not fimicole
 (a) Perithecia glabrous
 x. Perithecia globose
 (x) Perithecia immersed at base
 Acerbia 11: 353, 14: 619
 Leptospora 14: 619
 Bactrosphaeria 14: 617
 Acerbiella 17: 768
 (y) Perithecia wholly superficial
y. Perithecia elongate cylindric; ostiole sulcate
 (b) Perithecia hairy
II. Perithecia in a stroma
1. Stroma superficial
a. Perithecia in an effuse definite stroma
b. Perithecia densely heaped in a thin vanishing stroma
 Pseudomeliola 9: 938
2. Stroma immersed or erumpent
a. Stroma erumpent, yellow within
b. Stroma immersed, valsous
 (1) Necks of perithecia short, scarcely converging
 (2) Necks long, converging into a disk
 Vialaea 14: 619
 Cryptospora 2: 361

Family 19. VERRUCARIACEAE

ZAHLEBRUCKNER 51

Mycelium parasitic on bluegreen or yellow green algae, and forming a more or less distinct crustose, foliose or fruticose thallus, the latter usually superficial but sometimes below the surface; perithecia distinct, single or cespitose or united in a stroma, usually globose and ostiolate, membranous, coriaceous or carbonous; asci 1-many-spored; spores various.

I. Perithecia separate, at least not in a stroma (Cfr. Lichinae, page 74.)

- 1. Algae bluegreen, Nostoc, Scytonema, Sirospira, or Calothrix
 Subfamily Pyrenidiace 76
- a. Asci 4-8-spored
 (1) Asci 4-spored; spores 3-septate
 (2) Asci 6-8-spored
 (a) Spores spheric, 1-celled: algae Calothrix
 (b) Spores fusiform, 1-septate
 Pyrenidium 77
 Calothricopsis 165

x. Algae Sirospion or Scytonema

- y. Algae Nostoc **Eolichen 76**
- (c) Spores filiform, continuous **Pyrenocollema 169**
- (c) Spores filiform, continuous **Hassea 76**
- b. Asci many-spored; spores 1-celled **Placothelium 77**

2. Algae yellow green, Pleurococcus, Palmella, Chroolepus, etc.

a. Thallus crustose or gelatinous

- (1) Thallus gelatinous, hyphae loose **Epigloea 53**
- (2) Thallus crustose, not gelatinous, hyphae compact
- (a) Algae Cystococcus, in sheathed colonies **Subfamily Moriola 52**

x. Thallus without pseudoparenchyma

Moriola 52

y. Thallus with pseudoparenchyma

- (x) Asci 8-spored
 - m. Spores dark, 1-septate ***Dimerisma 52**
 - n. Spores dark, 4-8-septate ***Phaeomeris 52**
 - o. Spores hyaline, 2-4-septate **Spheconisca 52**
- (y) Asci many-spored; spores hyaline, 1-celled ***Pleophalis 52**

(b) Algae Pleurococcus or Palmella

Subfamily Verrucariae 53

x. Paraphyses lacking, or soon disappearing

- (x) Asci 1-8-spored
 - m. Algae present within the perithecium; spores muriform
 - (m) Spores hyaline ***Phalostauris 57**
 - (n) Spores dark **Staurothele 56**
 - n. Algae lacking in perithecium
 - (m) Spores 1-celled
 - r. Spores globose to elliptic
 - (r) Perithecia more or less superficial
 - h. Spores hyaline **Verrucaria 54**
 - i. Spores dark ***Phaeosporis 55**
 - (s) Perithecia immersed ***Lithoecis 55**
 - s. Spores vermiform, clavate at each end **Saccopyrenia 54**
 - (n) Spores 2-4-celled, hyaline
 - r. Spores 2-celled **Thelidium 56**
 - s. Spores 4-celled ***Phragmothele 56**
 - (o) Spores muriform **Polyblastia 56**
- (y) Asci many-spored **Trimmatothele 56**

y. Paraphyses persistent

- (x) Algae present in the perithecium **Thelenidia 57**

(y) Hymenial algae lacking

- m. Perithecia with normal ostiole

- (m) Spores 1-celled
 - r. Spores hyaline **Thrombium 57**
 - s. Spores dark ***Phaeothrombis 57**
- (n) Spores septate
 - r. Spores elliptic, 3-few-septate **Geisleria 57**
 - s. Spores muriform
 - (r) Spores hyaline **Microglæna 57**
 - (s) Spores dark ***Phaeoglæna 57**
 - t. Spores needle-shaped, many-celled **Gongylia 57**
- n. Ostiole margined by a broad disk
 - (m) Spores transeptate **Aspidopyrenium 58**
 - (n) Spores muriform **Aspidothelium 58**
- (c) Algae Chroolepus
 - x. Perithecia upright, with vertical ostiole **Subfamily Pyrenulæ 62**
- (x) Paraphyses free, simple
 - m. Perithecia smooth
 - (m) Spores 1-celled, colorless **Coccotrema 66**
 - (n) Spores septate
 - r. Asci 4-8-spored
 - (r) Asci persistent
 - h. Spores transeptate
 - (h) Spores hyaline
 - +. Spores 1-septate
 - (+) Spore cells separating ***Dichoporis 66**
 - (—) Spore cells not separating ***Diporina 66**
 - . Spores 2-many-septate **Porina 66**
 - (i) Spores dark
 - +. Spores 1-septate ***Dipyrenis 68**
 - . Spores several-septate **Pyrenula 67**
(incl. **Blastodesmia 67**)
 - i. Spores muriform
 - (h) Spores hyaline **Clathroporina 67**
 - (i) Spores brown **Anthracotheicum 68**
 - (s) Asci evanescent; spores acicular, clear **Belonia 67**
 - s. Asci many-spored; spores septate, clear
 - (r) Spores 1-celled ***Holothelis 67**
 - (s) Spores septate
 - h. Spores 1-septate ***Dithelopsis 67**

- i. Spores 2-many-septate
 - Thelopsis** 67
- n. Perithecia with stiff fascicled hairs
 - Stereochlamys** 68
- (y) Paraphyses lacking, or branched and united
 - m. Ostiole round or dot-like
 - (m) Spores hyaline
 - r. Spores 1-septate ***Pyrenyllum** 64
 - s. Spores 2-many-septate
 - (r) Spores oval to oblong
 - Arthropyrenia** 64
 - (incl. **Pseudopyrenula** 65)
 - (s) Spores acicular to filiform
 - Leptorhaphis** 65
 - Polyblastiopsis** 65
 - t. Spores muriform
 - (n) Spores brown
 - r. Spores 1-septate **Microthelia** 62
 - s. Spores 2-several-septate ***Polythelis** 64
 - n. Ostiole radiate, torn or lobed
 - Asteroporum** 62
- y. Perithecia oblique or horizontal with oblique or lateral ostiole
 - Subfamily Paratheliae** 71
 - (x) Spores transeptate
 - m. Spores hyaline
 - (m) Spores 1-septate ***Ditrems** 71
 - (n) Spores several-septate, oblong
 - Pleurotrema** 71
 - (incl. **Plagiotrema** 72)
 - (o) Spores filiform, many-celled
 - *Trichotrema** 71
 - n. Spores brown
 - Parathelium** 72
 - (y) Spores muriform
 - Campylothelium** 72
 - m. Spores hyaline
 - Pleurothelium** 72
 - n. Spores brown
 - (d) Algae *Phyllactidium* or *Cephaleurus*
 - Subfamily Strigulae** 74
- x. Perithecia smooth
 - (x) Paraphyses simple, free
 - m. Spores transeptate
 - (m) Spores 1-septate ***Phylloporis** 75
 - (n) Spores several-septate
 - r. Thallus uniform **Phylloporina** 75
 - s. Thallus orbicular, lobed at edge
 - Strigula** 76
 - n. Spores muriform
 - Phyllobathelium** 75
 - (y) Paraphyses branched and united
 - m. Spores 1-celled, dark **Haplopyrenula** 74
 - n. Spores 2-4-celled, brown **Microtheliopsis** 75

- y. Perithecia with fascicled nearly horizontal hairs at apex
Trichothelium 75
 - b. Thallus foliose or scaly
Subfamily Dermatocarpae 58
 - (1) Algae *Palmella*
 - (a) Hymenial algae lacking
 - x. Paraphyses lacking, or fused into a mass
 - (x) Paraphyses lacking; thallus without cortex
Normandina 59
 - (y) Paraphyses fused; thallus corticate
 - m. Spores 1-celled, colorless
Dermatocarpum 60
 - n. Spores septate
 - (m) Spores colorless
Placidopsis 60
 - (n) Spores brown
Heterocarpum 60
 - y. Paraphyses persistent
 - (x) Spores 1-celled, brown
Anapyrenium 59
 - (y) Spores muriform, colorless
Psoroglaena 59
 - (b) Hymenial algae present
Endocarpum 61
 - (2) Algae *Chroolepus*; spores colorless, 1-celled
Lepolichen 69
 - (3) Algae *Prasiola*
Mastodia 241
 - c. Thallus fruticose, branched, with *Pleurococcus*; spores muriform, brown
Pyrenothamnia 61

II. Perithecia in a stroma (Cfr. *Pertusariae*, page 79.)

 - 1. Perithecia upright, with individual pores
Subfamily Trypetheliae 69
 - a. Spores colorless
 - (1) Spores transeptate
 - (a) Spores oval to fusiform
Trypethelium 70
 - (b) Spores filiform
Tomasiella 69
 - (2) Spores muriform
Laurera 71
 - b. Spores brown
 - (1) Spores transeptate
Melanotheca 70
 - (2) Spores muriform
Bottaria 71
 - 2. Perithecia oblique or horizontal, with a common canal or pore
Subfamily Astrotheliae 72
 - a. Spores transeptate
 - (1) Spores colorless
Astrothelium 73
(incl. Lithothelium 73)
 - (2) Spores brown
Pyrenastrum 73
 - b. Spores muriform
 - (1) Spores colorless
Heufleria 74
 - (2) Spores brown
Parmenteria 74

III. Perithecia sunken in stroma-like warts; horizontal thallus lacking; asci many-spored; spores 1-celled, clear
Thelocarpum 150

Family 20. HYPOCREACEAE

2: 447, 9: 941, 11: 354, 14: 621, 16: 559, 17: 777.

Mycelium scanty and immersed or producing a subicle or a stroma; perithecia

globoid, sometimes beaked, fleshy, waxy or waxy-membranous, bright colored, usually reddish, more rarely blue, yellow or whitish, never carbonous, opening by a round pore or ostiole, single, cespitose or composite in a stroma; asci and spores as in Sphaeriaceae.

Allantosporae

17: 778

Spores 1-celled, obtuse, curved-oblong, hyaline or olivascent

One genus

Allantonectria 17: 778

Hyalosporae

2: 447, 9: 941, 11: 354, 14: 621, 16: 559, 17: 778

Spores 1-celled, hyaline

I. Perithecia separate

1. Perithecia covered

a. Asci 8-spored

Hyponectria 2: 455

b. Asci many-spored

Thelocarpum 9: 946

2. Perithecia superficial or nearly so

a. Perithecia beaked; spores ciliate

Eleutheromyces 2: 455

b. Perithecia not beaked

(1) Spores smooth

Nectriella 2: 448

(2) Spores ciliate or spiny

(a) Spores 1-ciliate at each end

Heteronectria 14: 624

(b) Spores spiny, hemispheric

Cleistosoma A: 195, 9: 943

II. Perithecia cespitose

1. Asci 8-spored

Lisiella 9: 945

2. Asci many-spored

Chilonectria 2: 453

III. Perithecia in a subicle or stroma

1. Perithecia in a subicle, i. e., a cobwebby or cottony stroma

a. Paraphyses lacking, fungicole

Peckiella 9: 944

b. Paraphyses numerous, not fungicole

Byssonectria 2: 456

2. Perithecia in a definite stroma

a. Stroma effuse, globose, verruciform or linear

(1) Asci 8-spored

(a) Perithecia circinate, valsiform **Balzania** 16: 561

(b) Perithecia not circinate, mostly irregular

x. Spores globose

Battarina 2: 533

y. Spores ovate to oblong

(x) Stroma globose or verruciform

m. Stroma globose, smooth, dark

Pseudotrype 16: 561

n. Stroma verruciform, hairy, red

Selinia 2: 457

(y) Stroma lirelliform, clear

Monographus 2: 457

(z) Stroma effuse, phyllogenous

Polystigma 2: 458

(2) Asci many-spored; phyllogenous

Moelleriella 14: 626

b. Stroma elongate, erect

- (1) Asci 8-spored
 (a) Stroma capitate, spores smooth **Sphaerostilbella** 17: 778
 (b) Stroma clavaria-like; spores asperate **Penicilliopsis** 9: 945
 (2) Asci 16-spored; stroma clavate; on insects **Podostroma** 11: 355

Phaeosporae

2: 459, 9: 949, 11: 355, 14: 626, 16: 562, 17: 781

Spores 1-celled, dark

- I. Perithecia separate
 1. Perithecia more or less covered **Baculospora** 9: 952
 2. Perithecia superficial
 a. Perithecia not beaked
 (1) Perithecia smooth **Neocosmospora** 16: 562
 (a) Spores globose, verruculose ***Sphaerodes** 2: 460
 (b) Spores oval to elliptic, smooth **Erythrocarpum** 9: 950
 (2) Perithecia hairy
 b. Perithecia beaked
 (1) Asci 8-spored **Melanospora** 2: 461
 (2) Asci many-spored **Scopinella** 9: 953
 II. Perithecia in a subicle or a stroma
 1. Perithecia immersed in a subicle
 a. Perithecia beaked ***Rhynchomelas** 2: 461
 b. Perithecia not beaked **Sphaeroderma** 2: 459
 2. Perithecia in a stroma
 a. Spores spheric **Thuemenella** 14: 628
 b. Spores ovoid
 (1) Stroma clavate, pendulous **Xylocrea** 16: 451
 (2) Stroma more or less globose
 (a) Perithecia in one layer **Entonaema** 16: 450
 (b) Perithecia in several layers **†Stromne** 16: 452
 (Engleromyces)

Hyalodidymae

2: 465, 9: 953, 11: 356, 14: 628, 16: 565, 17: 782.

Spores 2-celled, hyaline

- I. Perithecia separate or cespitose
 1. Perithecia immersed; in leaves **Charonectria** 2: 466
 2. Perithecia superficial
 a. Perithecia red, yellow or white
 (1) Asci of one kind, 8-spored
 (a) Perithecia beaked **Rhynchonectria** 17: 798
 (b) Perithecia not beaked
 x. Spore cells separating **Bresadollella** 17: 797
 y. Spore cells not separating
 (x) Perithecia smooth

m. Perithecia often on a tubercularoid base

Nectria 2: 479

n. Perithecia on or with a stilboid base

Sphaerostilbe 2: 511

(y) Perithecia hairy

***Dasypthora 2: 505**

(2) Asci of two kinds, 8-spored and many-spored

Aponectria 2: 516

(3) Asci many-spored

Metanectria 2: 517

b. Perithecia blue or violet

(1) Asci 8-spored

Lisea 2: 517

(2) Asci many-spored

Cyanocephalum 11: 360

II. Perithecia in a subicle or stroma

1. Perithecia in a subicle

a. Perithecia globose-conic, fungicole

Hypomyces 2: 466

b. Perithecia scutate-dimidiolate, phyllogenous

Puiggariella 2: 478

2. Perithecia in a stroma

a. Perithecia adnate to a fruticose stroma

Corallomyces 2: 519

b. Perithecia immersed in a clavate, globose, pulvinate or effuse stroma

(1) Perithecia long-beaked

Treleasia 14: 640

(2) Perithecia not long-beaked

(a) Spore divided near base

Lambro 16: 589

(b) Spore divided near middle

x. Spore cells separating

(x) Stroma vertically elongate

Podocrea 17: 799

(y) Stroma globose to effuse

m. Conidiophore (Stilbum) arising from stroma

Stilbocrea 16: 588

n. Conidiophore lacking or not Stilbum

Hypocrea 2: 520

(incl. **Cryphonectria 17: 783**, **My-**
cocitrus 16: 589)

y. Spore cells not separating

Hypocreopsis 9: 980

(incl. **Clintoniella 16: 588**)

Phaeodidymae

2: 537, 9: 981, 14: 646, 16: 591, 17: 808.

Spores 2-celled, dark

I. Perithecia separate or cespitose

1. Perithecia immersed

a. Perithecia white, ostiole cylindric; on black fungi

Passerinula 2: 537

b. Perithecia darkish, ostiole broad, bright; in bark

Spegazzinula 2: 537

2. Perithecia superficial

a. Spore cells separating

Neoskofitzia 9: 981

b. Spore cells not separating

- (1) Perithecia on or with a stilbum-like base

Calostilbe 16: 591

- (2) Perithecia without stilbum-like base, often with Helminthosporium

Letendraea 2: 538

(incl. **Phaeonectria** 11: 359)

- II. Perithecia in a stroma

Phaeocreopsis 16: 591

Hyalophragmiae

2: 539, 9: 982, 11: 363, 14: 647, 16: 592, 17: 808

Spores 2-several-septate, hyaline

- I. Perithecia separate or cespitose

1. Perithecia immersed, spores falcate

Cesatiella 2: 557

2. Perithecia superficial

- a. Perithecia red, yellow or white

- (1) Perithecia on or with a stilbum base

Stilbonectria 9: 986

- (2) Perithecia without a stilbum base

- (a) Perithecia astomous

Malmeomyces 16: 592

- (b) Perithecia ostiolate

- x. Spores ciliate at each end

Paranectria 2: 552

(incl. **Debaryella** 17: 809)

- y. Spores muticate

Calonectria 2: 540

- b. Perithecia blue, violet or greenish

- (1) Spores muticate

Gibberella 2: 552

- (2) Spores appendiculate each way

Lecithium 11: 364

- II. Perithecia in a subicle or in a stroma

1. Perithecia in a subicle

Berkelella 9: 989

2. Perithecia in a pulvinate or discoid stroma

Broomella 2: 557

Phaeophragmiae

2: 539, 9: 982, 11: 363, 16: 599

Spores 2-several-septate, dark

- I. Perithecia in a large tuberiform stroma

Peloronectria 16: 599

Hyalodictyae

2: 558, 9: 990, 11: 364, 14: 650, 16: 599, 17: 814

Spores muriform, hyaline

- I. Perithecia separate or cespitose, superficial

1. Perithecia red or yellow to whitish

- a. Perithecia with a stilbum base

Megalonectria 2: 560

- b. Perithecia without a stilbum base

Pleonectria 2: 559

2. Perithecia blue or violet

Pleogibberella 9: 992

- II. Perithecia in a valloid stroma

Thyronectria 2: 561

Phaeodictyae

2: 558, 9: 990, 11: 364, 16: 600, 17: 815

Spores muriform, dark

I. Perithecia separate or cespitose

1. Perithecia beaked, asci 8-spored
2. Perithecia not beaked, asci many-spored

Bivonella 9: 989

Feracia 17: 815

II. Perithecia in a stroma

1. Asci paraphysate

- a. Stroma conoid, snow-white
- b. Stroma tuberiform, rimose

Leucocrea 16: 601

Shiraia 16: 600

2. Asci not paraphysate

- a. Stroma pulvinate, disk greenish
- b. Stroma subcrustose

Mattirolia 9: 993

Uleomyces 11: 364

Scolecosporae

2: 562, 9: 993, 11: 365, 14: 651, 17: 815, 16: 601

Hyaloscoleciae

Spores needle-shaped or filiform, hyaline or nearly so

I. Perithecia separate or cespitose

1. Perithecia enclosed in a sack
2. Perithecia not in a sack

Oomyces 2: 564

a. Perithecia immersed or erumpent

- (1) Perithecia many-perforate above
- (2) Perithecia with a single ostiole

Coscinnaria 9: 1003

Micronectria 9: 996

b. Perithecia superficial

- (1) Perithecia globose-conic, papillate, reddish

Ophionectria 2: 563

- (2) Perithecia vertically oblong, not papillate, white

Tubeufia 14: 652

II. Perithecia in a subicle or in a stroma

1. Perithecia in a subicle or byssoid stroma

Torrubiella 9: 994

(Helminthascus 16: 616)

2. Perithecia in a stroma

a. Stroma vertical

- (1) Stroma from a sclerotium or a blackened matrix

Claviceps 2: 564

(incl. Balansia 9: 997, Balansiella 17: 822)

- (2) Stroma without sclerotium; on insects or fungi

Cordyceps 2: 566

Dussiella 9: 1004

b. Stroma effuse or pulvinate

- (1) Stroma on a white subicle

- (2) Stroma without a subicle

- (a) Stroma effuse, encircling culms

Epichloe 2: 578

- (b) Stroma pulvinate to globose

x. Spore cells separating

- (x) Perithecia in a definite peripheral zone

Mycomalus 16: 604

- (y) Perithecia not arranged in a zone
 - m. Stroma hard and black **Fleischera 17:819**
 - n. Stroma fleshy and soft
 - (m) Stroma fertile over entire surface
Hypocrella 2:579
 - (n) Stroma fertile above, sterile below
Ascopolyporus 16:605
- y. Spore cells not separating **Echinodothis 17:819**

Phaeoscoleciae

Spores filiform, dark

- I. Stroma black, perithecia immersed; spores dilabent, brown
Konradia 16:605

Family 21. DOTHIDEACEAE

Mycelium typically producing a stroma, in which the perithecia are more or less completely sunken and reduced to locules; otherwise as in Sphaeriaceae.

Hyalosporae

2:588, A:222, 9:1004, 11:368, 14:663, 16:616, 17:827

Spores 1-celled, hyaline or nearly hyaline, ovoid, oblong or fusoid, rarely globose

- I. Asci 8-spored
 - 1. Stroma globose, pulvinate or cup-shaped
 - a. Stroma cupulate-discoid, attached at center
Schweinitzia 9:1005
 - b. Stroma pulvinate or subclypeate
 - (1) Stroma pulvinate
 - (a) Stroma subcoriaceous **Bagnisiella 2:589**
 - (b) Stroma corneous **Kullhemia 2:591**
 - (2) Stroma subclypeate, often oval to oblong
Mazzantia 2:591
(incl. *Diachora* 11:374)
 - 2. Stroma oblong, linear or effuse
 - a. Stroma superficial, on flowers **Hyalodothis 11:374**
 - b. Stroma erumpent or superficial
 - (1) Stroma waxy or fleshy
 - a. Stroma more or less waxy within, linear, black
Scirrhia 9:1030
 - b. Stroma fleshy, white **Monographus 2:457**
 - (2) Stroma more or less carbonous, round to effuse
 - (a) Asci usually shorter than 30μ **Euryachora 2:625**
 - (b) Asci usually longer than 50μ **Phyllachora 2:594**
- II. Asci 3-spored; stroma subglobose, subcorneous
Zimmermanniella 17:827

Phaeosporae

2:626, 9:1031, 11:374, 14:675, 16:625, 17:841

Spores 1-celled, colored, usually yellowish or brown, ovoid, oblong or fusoid

I. Stroma subhemispheric to effuse; asci 8-spored

Auerswaldia 2: 626**Hyalodidymae**

2: 627, 9: 1034, 11: 375, 14: 676, 16: 625, 17: 844

Spores 1-septate (2-celled), hyaline or subhyaline, ovoid, oblong or fusoid

I. Stroma pulvinate or disciform

1. Stroma pulvinate, erumpent, usually ramicole

a. Asci 4-8-spored *Plowrightia* 2: 635b. Asci many-spored **Pleodothis* 11: 3762. Stroma disciform, superficial, foliicole *Microcycclus* 17: 844

II. Stroma oblong to linear or effuse

1. Stroma linear *Scirrha* 2: 634

2. Stroma oblong to effuse, sometimes orbicular

a. Cells of spore very unequal *Munkiella* 9: 1034

b. Cells of spore equal

(1) Locules immersed in stroma *Dothidella* 2: 627(2) Locules completely exerted from stroma
Rosenscheldia 9: 1036**Phaeodidymae**

2: 639, 9: 1043, 11: 377, 14: 680, 16: 628, 17: 852

Spores 1-septate, dark, fuliginous to brown, ovoid, oblong or fusoid

I. Stroma superficial, disciform

Maurodothis 17: 856

II. Stroma erumpent, pulvinate to effuse

1. Stroma usually effuse

Phaeodothis 17: 854

2. Stroma pulvinate

a. Stroma subcarbonous

Russoella 9: 1044

b. Stroma subcoriaceous

Dothidea 2: 639(incl. *Hypoxyloopsis* 17: 855)**Hyalophragmiae**

2: 646, 9: 1045, 11: 377, 14: 682, 16: 629, 17: 856

Spores 2-several-septate, hyaline, oblong to cylindric

I. Perithecia or locules exerted from the stroma; spores sometimes colored

Montagnella 2: 646

II. Perithecia immersed

1. Stroma fleshy or waxy

Dangardiella 14: 683

2. Stroma carbonous

a. Perithecia disposed in radiate lines *Telimena* 16: 631b. Perithecia not radiate *Darwiniella* 9: 1048**Phaeophragmiae**

2: 646, 9: 1045, 11: 377, 14: 682, 16: 629, 17: 857

Spores 2-several-septate, colored, yellowish to brown, oblong to cylindric

I. Stroma elongate or linear

Rhopographus 2: 647

II. Stroma subhemispheric

Homostegia 2: 649

Hyalodictyae

8:847

Spores muriform, hyaline, ovate to oblong

- I. Stroma with a round black receptacle stuffed with locules

Pyrenotheca 8:847

- II. Stroma disciform or hemispheric

Discostroma 11:379*Phaeodictyae**

2:651, 9:1051, 11:378, 14:684, 16:632, 17:858

Spores muriform, dark, ovate to oblong

- I. Stroma disciform or hemispheric

Curreya 2:651**Scolecosporae**

2:652, 9:1051, 14:685, 16:632, 17:859

Spores filiform, hyaline, continuous, guttate or septate

- I. Asci 8-spored

1. Spores narrowly filiform, 1-2
- μ
- wide

Ophiodothis 2:652

2. Spores broadly filiform, 5-8
- μ
- wide

Oxydothis 14:674

- II. Asci many-spored

Myriogenospora 14:685**Family 22. MYCOPORACEAE**

ZAHLEBRUCKNER 77

Mycelium parasitic on *Palmella* or *Chroolepus*, forming a uniform thallus without a cortex; perithecia reduced to locules in a stroma as in *Dothideaceae*, to which family the genera might well be referred.

- I. Spores transeptate; algae
- Chroolepus*

1. Spores 1-septate

- a. Spores colorless

***Chlorodothis 78**

- b. Spores brown

***Sciodothis 78**

2. Spores several-septate

- a. Spores colorless

***Nothostroma 78**

- b. Spores brown

***Mycoporis 78**

3. Spores needle-shaped

Mycoporellum 78

- II. Spores muriform; algae
- Palmella*

Mycoporum 78**Family 23. COCCOIDEACEAE**

17:860 (16:624)

Stromata with immersed locules, affixed to the matrix by a central stipitiform point, subcarnose when fresh, subcorneous when dry; locules without distinct proper walls.

Hyalosporae

16:624

Spores 1-celled, hyaline, ellipsoid

- I. Stroma superficial, disciform-pulvinate, subcarnoseous

Coccoidea 16:624

- II. Stroma superficial, cupulate-discoid

Schweinitziella 9:1005

Phaeosporae

17:860

Spores 1-celled, dark, ovoid

I. Stroma subcarnose, discoid

Coccodiscus 17:860**Hyalodidymae**

17:860

Spores 1-septate, hyaline, fusoid

I. Stroma subcarnose or corneous, disciform-pulvinate

Yoshinagaia 17:860**Family 24. MICROTHYRIACEAE**

2:658, 9:1053, 11:379, 14:686, 16:633, 17:861

Perithecia separate, or rarely in a stroma, dimidiate, applanate, context usually beautifully radiate, subsuperficial, black, membranous or carbonous, perforate or astomous; asci 4-8-spored, usually short.

Subfamily Microthyriae

Perithecia typically not seated on a subicle

Hyalosporae

2:659, 9:1053, 11:379, 14:686, 16:633, 17:861

Spores 1-celled, hyaline, ovoid to oblong or fusiform

I. Spores oblong, curved

Piptostoma 9:1054

II. Spores elliptic to fusiform, straight

1. Spores elliptic, short

Myiocoprum 2:659

2. Spores fusiform, long, sometimes 1-septate

Pemphidium 2:670**Phaeosporae**

2:662, 9:1054, 16:634, 17:861

Spores 1-celled, dark, globose to oblong

I. Spores globose; perithecia on a hyaline subicle

Blasdalea 16:634

II. Spores oblong; subicle lacking

Vizella 2:662**Hyalodidymae**

2:662, 9:1055, 11:379, 14:687, 16:635, 17:862

Spores 1-septate, hyaline, oblong to fusoid

I. Asci with paraphyses

1. Perithecia with several ostioles

Polystomella 9:1063

2. Perithecia astomous

Clypeolum 2:667

II. Asci without paraphyses

1. Perithecia smooth

a. Perithecia more or less mytiliform and confluent

Brefeldiella 9:1063

- b. Perithecia not mytiliform or confluent

Microthyrium 2: 662

2. Perithecia setulose

Chaetothyrium 9: 1061

Phaeodidymae

2: 668, 9: 1064, 11: 381, 14: 689, 16: 639, 17: 865

Spores 1-septate, dark, oblong to fusoid

- I. Perithecia superficial, carbonous, perforate

Seynesia 2: 668

Hyalophragmiae

2: 668, 9: 1068, 11: 381, 14: 690, 16: 642, 17: 868

Spores 2-several-septate, hyaline, fusoid to cylindric

- I. Perithecia separate

1. Perithecia on a fibrous mycelium

Trichopeltis 9: 1068

2. Perithecia without a mycelium

- a. Perithecia smooth

Micropeltis 2: 669

- b. Perithecia margined with rigid appendages

Actiniopsis 17: 871

- II. Perithecia in a dimidiate many-perforate stroma

Gilletiella 14: 691

Phaeophragmiae

2: 668, 9: 1068, 11: 381, 14: 690, 16: 642, 17: 872

Spores 2-several-septate, dark, fusoid, to cylindric

- I. Perithecia membranous, subfibrous; spores conglobate

Phaeoscutella 17: 872

- II. Perithecia carbonous or coriaceous

Scutellum 2: 668

Hyalodictyae

A: 253, 9: 1071, 14: 692, 16: 645

Spores muriform, hyaline, oblong to elliptic

- I. Perithecia membranous, ostiolate

Saccardinula 9: 1071

Phaeodictyae

17: 873

Spores muriform, dark, oblong to elliptic

- I. Perithecia superficial, phyllogenous, subradiate

†**Phaeopeltis** 17: 873

(**Phaeosaccardinula**)

Scolecosporae

9: 1072, 16: 646, 17: 873

Spores acicular, hyaline or colored, continuous or septate

- I. Spores separating into cells

Scolecopeltis 9: 1072

- II. Spores not separating

Ophiopeltis 17: 873

Subfamily Asterinae

14: 692, 16: 646, 17: 875

Perithecia typically seated upon an effuse radiate black subicle

Hyalosporae

14: 692, 16: 646

- I. Spores hyaline, one-celled

Asterula 1: 47, 14: 692**Phaeosporae**

14: 693

- I. Spores dark, one-celled

Asteronia 1: 47, 14: 693**Hyalodidymae**

14: 693, 16: 646, 17: 882

- I. Spores hyaline, 1-septate

Asterella 1: 42, 14: 698**Phaeodidymae**

14: 693, 16: 646, 17: 875

- I. Spores dark, 1-septate

Asterina 1: 39, 14: 693(incl. *Trichothyrium* 9: 1062)**Hyalophragmiae**

14: 699, 16: 650, 17: 884

- I. Spores hyaline, several-septate

Asteridium 1: 49, 14: 699**Phaeophragmiae**

14: 699, 17: 885

- I. Spores dark, several-septate

Asteridiella 14: 701**Family 25. LOPHIOSTOMATACEAE**

2: 672, 9: 1074, 11: 382, 14: 702, 16: 650, 17: 886

Perithecia simple, separate, at first covered, then subsuperficial or insculptate, carbonous, rarely submembranous, black, with a very narrowly rimose, broad and compressed ostiole; asci paraphysate, usually 8-spored; matrix often blackened giving the appearance of a stroma.

Hyalosporae

(Not represented)

Phaeosporae

2: 673, 17: 886

- I. Spores 1-celled, dark

Lophiella 2: 673**Hyalodidymae**

2: 675, 9: 1075, 11: 383, 14: 702, 17: 886

Spores 1-septate, hyaline, oblong to fusoid

- I. Perithecia smooth

Lophiosphaera 2: 675

- II. Perithecia hairy, with wool at base

Lophiotricha 9: 1082**Phaeodidymae**

2: 673, 9: 1074, 11: 382, 14: 702, 16: 650, 17: 887

- I. Spores 1-septate, dark

Schizostoma 2: 673

Hyalophragmiae

2: 678, 9: 1076, 14: 703, 16: 651, 17: 887

- I. Spores hyaline, several-septate **Lophiotrema 2: 678**

Phaeophragmiae

2: 689, 9: 1083, 11: 383, 14: 704, 16: 651, 17: 887

Spores dark, several-septate

- I. Spores caudate **Brigantiella 17: 889**
 II. Spores not caudate **Lophiostoma 2: 689**

Hyalodictyae

9: 1093

- I. Spores hyaline or nearly so, muriform **Lophidiopsis 9: 1093**

Phaeodictyae

2: 710, 9: 1091, 11: 384, 14: 706, 16: 653, 17: 889

- I. Spores dark, muriform **Platystomum 17: 889**
(Lophidium 2: 710)

Scolecosporae

2: 717, 9: 1094

- I. Spores filiform, hyaline or dilutely colored **Lophionema 2: 717**

Family 26. CORYNELIACEAE

9: 1073, 11: 385, 16: 650

Perithecia separate or in a stroma, coriaceous, black, lageniform, with an elongated ostiole, perforate at the apex and then broadly expanded and infundibuliform.

Phaeosporae

9: 1073, 16: 650

- I. Spores dark, 1-celled, spherical **Corynelia 9: 1073**

Phaeophragmiae

11: 385

- I. Spores dark, 3-several-septate **Coryneliella 11: 385**

Phaeodictyae

9: 1073

- I. Spores black, stellate, cells radiating **Tripodora 9: 1073**

Order 9. HYSTERIALES

Perithecia oblong to linear, rarely round, carbonous or membranous, rarely coriaceous, ostiole a cleft or slit; mycelium often forming a thallus with algae.

Family 27. HEMIHYSTERIACEAE

9: 1094, 11: 385, 14: 707, 16: 653, 17: 892

Perithecia simple or aggregated into a stroma, dimidiate-scutate, subicle lacking,

or more or less developed, ostiole hysterior-like; asci 8-spored, spores usually 2-celled, dark.

Phaeosporae

14:707

- I. Spores dark, 1-celled; subicle lacking **Cyclostomella** 14:707

Phaeodidymae

9:1094, 11:385, 14:708, 16:653, 17:892

Spores dark, 1-septate, elliptic to fusoid

- I. Perithecia on a subicle; stroma lacking **Morenoella** 9:1094
 II. Perithecia in a stroma
 1. Asci with paraphyses **Parmularia** 14:708
 (**Schneepia** 9:1097)
 2. Asci without paraphyses **Hysterostomella** 9:1098

Hyalophragmiae

17:892

- I. Spores hyaline, 3-several-septate **Parmulariella** 17:892

Family 28. HYSTERIACEAE

2:721, 9:1100, 11:385, 14:710, 16:657, 17:893

Perithecia simple or very rarely in a stroma, erumpent-superficial, horizontally, rarely vertically oblong or linear, membranous, coriaceous or carbonous, rarely carnosule at first, usually black, opening along the whole surface by a somewhat narrow cleft; asci usually paraphysate, 4-8-spored, rarely many-spored.

Hyalosporae

2:723, 9:1100, 11:385, 14:710, 16:657, 17:893

Spores 1-celled, hyaline, globose to fusoid

- I. Asci 4-spored; spores covered with mucus **Hypodermella** 11:385
 II. Asci 8-spored
 1. Perithecia single or at least not coalescing **Schizothyrium** 2:723
 (**Henriquesia** 2:726)
 2. Perithecia coalescing in stellate groups of 4-6 **Delpinoella** 16:658

Phaeosporae

2:727, 9:1100, 14:710

Spores 1-celled, dark, globose to ovoid

- I. Asci 8-spored
 1. Perithecia separate; asci paraphysate **Farlowiella** 2:727, 9:1100
 2. Perithecia stromatic at base; asci aparaphysate **Erikssonia** 14:710
 II. Asci 10-12-spored **Lembosiella** 9:1101

Hyalodidymae

2: 727, 9: 1101, 11: 386, 14: 711, 16: 659, 17: 895

Spores 1-septate, hyaline, ovoid to fusoid

I. Perithecia membranous

1. Perithecia separate, minute

Aulographum 2: 727

2. Perithecia in a dimidiate stroma

Cycloschizum 17: 896**II. Perithecia carbonous**

1. Perithecia separate

a. Perithecia simple or scarcely branched

(1) Asci 8-spored

Glonium 2: 731

(2) Asci many-spored

***Pleoglonis 9: 1103**

b. Perithecia radiately branched, or stellate

Actidium 2: 738

2. Perithecia connected in orbicular sori

Synglonium 14: 711**III. Perithecia at first somewhat fleshy, reddish or yellow****Angelinia 2: 739****Phaeodidymae**

2: 740, 9: 1103, 11: 387, 14: 711, 16: 659, 17: 897

Spores 1-septate, dark, ovoid to oblong

I. Perithecia on a fibrillose-radiate subicle**Lembosia 2: 741****II. Perithecia without a subicle**

1. Perithecia coriaceous

Tryblidium 2: 740

2. Perithecia carbonous

a. Perithecia linear; cleft very narrow, straight

Bulliardiella 17: 902

b. Perithecia scutellate; cleft subcircular

Dielsiella 17: 902**Hyalophragmiae**

2: 765, 9: 1112, 11: 388, 14: 715, 16: 664, 17: 903

Spores several-septate, hyaline, oblong to cylindric

I. Perithecia saprogenous

1. Perithecia carbonous, cleft narrow

Gloniella 2: 765

2. Perithecia subcoriaceous, cleft wide

Pseudographis 2: 769**II. Perithecia biogenous, gregarious in spots**

1. Perithecia corticole

Dichaena 2: 771

2. Perithecia foliicole

a. Perithecia merely gregarious

Phragmographium 17: 906

b. Perithecia radiately disposed

Aldona 16: 667**Phaeophragmiae**

2: 743, 9: 1108, 11: 387, 14: 715, 16: 664, 17: 907

Spores several-septate, dark, oblong to cylindric

I. Edges of cleft somewhat obtuse, then more or less distant

1. Asci 4-8-spored

a. Perithecia transversely densely and coarsely sulcate

Rhytidhysterium 2: 759

b. Perithecia smooth

(1) Perithecia covered by the epidermis

Hypodermopsis 17: 908

(2) Perithecia erumpent or superficial

(a) Perithecia carbonous

Hysterium 2: 743

(b) Perithecia coriaceous

Tryblidiella 2: 757

2. Asci many-spored, perithecia subcoriaceous

Baggea 2: 760

II. Edges of cleft very thin, closely connivent

1. Asci 4-spored; perithecia subcarbonous, striate

Ostreium 2: 765

2. Asci 8-spored; perithecia somewhat membranous, fragile

Mytilidium 2: 760**Hyalodictyae**

2: 772, 9: 1116, 11: 389, 14: 717, 16: 668, 17: 909

Spores muriform, hyaline, ovoid to oblong

I. Perithecia separate

1. Perithecia carbonous, erumpent; spores without mucus

Gloniopsis 2: 772

2. Perithecia membranous, innate; spores with mucus sheath

Hysteropsis 9: 1118

II. Perithecia in a lenticular, radiate stroma

Mendogia 16: 669**Phaeodictyae**

2: 776, 9: 1119, 11: 389, 14: 717, 16: 668, 17: 912

Spores muriform, dark, ovoid to oblong

I. Perithecia carbonous or corneo-carbonous, firm

Hysterographium 2: 776

II. Perithecia membranous, thin

Graphyllum 16: 1145, 17: 913**Scolecosporae**

2: 784, 9: 1123, 11: 389, 14: 719, 16: 669, 17: 913

Spores bacillar to filiform, hyaline or dark

I. Spores 2-5 times shorter than the asci; perithecia membranous

Hypoderma 2: 784

II. Spores filiform, nearly as long as the asci

1. Perithecia horizontally elongate, rarely ampulliform

a. Perithecia elongate

(1) Perithecia membranous, applanate

Lophodermium 2: 791

(2) Perithecia subcarbonous, conchiform

Lophium 2: 799

(3) Perithecia subcoriaceous, depressed

(a) Perithecia subcorneous

Sporomega 2: 801

(b) Perithecia subcarinose

Colpoma 2: 803

b. Perithecia subspheroid or ampulliform

(1) Perithecia depressed spheroid, cleft longitudinal

Ostropa 2: 804

- (2) Perithecia horizontally ampulliform, ostiole roundish
Robergea 2:806
2. Perithecia vertically elongate, cylindric; cleft obsolete
- a. Spores breaking apart into cells **Microstelium 16:672**
- b. Spores not breaking apart **Acrospermum 2:807**
(Schizacrospermum 16:672)

Family 29. GRAPHIDACEAE

ZAHLBRUCKNER 87

Mycelium parasitic on yellow green algae, forming a crustose, foliose or fruticose thallus, the latter often immersed, or thallus lacking, and parasitic on lichens or on bark; perithecia single or cespitose or united in a stroma, typically oblong to elongate with a cleft-like opening, more rarely disk-shaped and with an irregular often stellate opening, more or less carbonous.

I. Perithecia separate

1. Thallus lacking, parasitic on lichens or on bark
Subfamily Arthoniae 89, R. 414
- a. Parasitic on lichens
1. Spores 1-celled **Phacopsis R. 419**
2. Spores 2-celled **Conida R. 420**
3. Spores 4-6-celled **Celidium R. 425**
- b. On bark
1. Spores 2-celled **Lecideopsis R. 432**
2. Spores 2-several-septate **Arthonia R. 435**
3. Spores muriform **Arthothelium R. 438**
2. Thallus present, crustose, or uniform
- a. Perithecia without an exciple, i. e., not margined
Subfamily Arthoniae 89
- (1) Algae *Palmella* or *Protococcus*; spores colorless
- (a) Spores 1-septate **Allarthonia 91**
- (b) Spores several-septate ***Plearthonis 91**
- (c) Spores muriform **Allarthothelium 241**
- (2) Algae *Chroolepus*
- (a) Spores transeptate
- x. Spores colorless
- (x) Spores 1-septate ***Diarthonis 91**
- (y) Spores 2-several-septate **Arthonia 89**
- y. Spores brown **Gymnographa 94**
- (b) Spores muriform **Arthothelium 91**
- (3) Algae *Phyllactidium*
- (a) Spores 1-septate ***Merarthonis 91**
- (b) Spores 2-several-septate **Arthoniopsis 91**
- b. Perithecia margined with a distinct proper exciple
Subfamily Graphidae 92
- (1) Thallus without cortex
- (a) Algae *Palmella*
- x. Perithecia with a single hymenium
- (x) Spores colorless
- m. Spores 1-celled

- (m) Hypothecium clear or brownish
Xylographa 93
- (n) Hypothecium black, carbonous
Lithographa 93
- n. Spores transeptate
Aulaxina 94
- (y) Spores dark
 - m. Spores transeptate
Encephalographa 94
 - n. Spores finally muriform
Xyloschistes 94
- y. Perithecia with 2-4 parallel hymenia
 - (x) Spores 1-celled
Ptychographa 94
 - (y) Spores transeptate
Diplogramma 94
- (b) Algae *Chroolepus*
 - x. Asci many-spored; spores filiform
Spirographa 96
 - y. Asci 1-8-spored
 - (x) Spores clear
 - m. Spores transeptate
 - (m) Paraphyses simple and not united
 - r. Ends of paraphyses little thickened, smooth
 - (r) Spores 1-septate
***Digraphis 98**
 - (s) Spores 2-several-septate
Graphis 96
 - s. Ends clavate and warted or spiny
***Psorographis 102**
 - (n) Paraphyses branched and united
Opegrapha 94
 - n. Spores muriform
 - (m) Paraphyses simple and not united
 - r. Ends of paraphyses not thickened, smooth
Graphina 99
 - s. Ends of paraphyses clavate, warted or spiny
†Acanthothecis 101
(not *Acanthothecium* Speg.)
 - (n) Paraphyses branched and united
Helminthocarpum 102
(incl. *Dictyographa 96*)
- (y) Spores dark
 - m. Spores 1-septate
Melaspilea 96
 - n. Spores 2-several-septate
Phaeographis 99
 - o. Spores muriform
Phaeographina 100
- (c) Algae *Phyllactidium*: spores transeptate
 - x. Spores clear; paraphyses branched and united
Opegraphella 102
 - y. Spores dark; paraphyses simple and free
Micrographa 102
- (2) Thallus with a cortex: algae *Chroolepus*
Subfamily Dirinae 105
- (a) Spores elliptic to fusoid, 4-8-celled, clear
Dirina 106

- (b) Spores similar but brown **Dirinastrum 106**
- 3. Thallus present, fruticose, erect **Subfamily Roccellae 106**
 - a. Hyphae of cortex parallel with thallus surface
 - (1) Perithecia elongate, furrowed; spores clear, 8-9-celled **Ingaderia 107**
 - (2) Perithecia round
 - (a) Hypothecium black; spores clear
 - x. Exciple with algae **Dendrographa 107**
 - y. Exciple without algae **Roccellaria 107**
 - (b) Hypothecium clear; spores brown, spiny **Darbishirella 108**
 - b. Hyphae perpendicular to surface
 - (1) Perithecia elongate, furrowed
 - (a) Perithecia immersed; hypothecium clear **Roccellographa 108**
 - (b) Perithecia superficial; hypothecium black **Reinkella 108**
 - (2) Perithecia round
 - (a) Spores clear; perithecia entire
 - x. Hypothecium black
 - (x) Thallus mostly crustose, slightly fruticose **Roccellina 108**
 - (y) Thallus distinctly fruticose **Roccella 109**
 - y. Hypothecium clear
 - (x) Algae present below the hypothecium **Pentagenella 110**
 - (y) No algae below the hypothecium **Combea 109**
 - (b) Spores brown or brownish; perithecia deeply lobed
 - x. Medulla clear throughout **Schizopelte 110**
 - y. Inner medullary layer black **Simonyella 110**
- II. Perithecia in a stroma, mostly immersed **Subfamily Chiodectae 102**
 - I. Algae Chroolepus
 - a. Paraphyses simple and free
 - (1) Spores transeptate
 - (a) Spores clear **Glyphis 103**
 - (b) Spores brown **Sarcographa 103**
 - (2) Spores muriform
 - (a) Spores clear **Enterodictyum 104**
 - (b) Spores brown **Sarcographina 103**
 - b. Paraphyses branched and reticulately united
 - (1) Spores transeptate
 - (a) Spores colorless **Chiodectum 104**
 - (b) Spores brown or dark
 - x. Perithecia margined **Sclerophytum 105**
 - y. Perithecia marginless **Synarthonia 91**
 - (2) Spores muriform
 - (a) Spores clear **Minksia 241**

- (b) Spores brown Enterostigma 105
2. Algae *Phyllactidium*
- a. Spores 2-celled; paraphyses simple and free Pycnographa 105
- b. Spores many-celled; paraphyses branched and united Mazosia 105

Order 10. PEZIZALES

Mycelium various, but typically inconspicuous or invisible; propagaton by conidia, but usually not in evidence; reproductive body or apothecium at first closed and more or less globose, rarely elongate, then opening more or less completely into a cup, saucer, or disk, waxy or fleshy, more rarely carbonous, leathery or gelatinous; asci typically 8-spored and paraphysate; spores various.

Family 30. PHACIDIACEAE

REHM 60

Apothecia sunken, more or less erumpent, disk-like or elongate, single or grouped, leathery or carbonous, black, firm, opening by lobes or by a rift; hypothecium poorly developed as a rule.

Hyalosporae

8:705, 11:431, 10:48, 14:813, 16:783, 18:155

Spores hyaline, 1-celled, globose to oblong

I. Apothecia concrete above with the epiderm

1. Apothecia and epiderm splitting radiately

Phacidium 8:709

2. Apothecia and epiderm splitting circumscissilely

Stegia 8:733

3. Apothecia and epiderm splitting irregularly

Cryptomyces 8:707

II. Apothecia and epiderm little or not at all concrete

Pseudophacidium R. 94

Phaeosporae

14:814

Spores dark, 1-celled, oblong

I. Apothecia superficial, membranous, lacinate

Phaeophacidium 14:814

Hyalodidymae

Spores hyaline, 1-septate, elliptic to oblong

I. Apothecia scutellate or oblong, lacinate

Schizothyrium R. 75

(incl. *Rhagadolobium* 14:816)

Phaeodidymae

Spores dark, 1-septate, elliptic to oblong

I. Apothecia in black foliicole spots

Cocconia 8:738

II. Apothecia stellately erumpent through epiderm

Metadothella 18: 162

III. Apothecia and epiderm concrete, laciniate

Keithia 10: 49**Phragmosporae**

8: 740

Spores typically hyaline, 2-several-septate, ovoid to oblong

I. Apothecia and epiderm concrete, laciniate

Sphaeropezia 8: 740, **R.** 72

II. Apothecia and epiderm not concrete, splitting irregularly

Pseudographis **R.** 90**Dictyosporae**

8: 764, 16: 790

Spores muriform, typically hyaline, ovoid to oblong

I. Apothecia round to oblong, splitting irregularly; paraphysate

Dothiora 8: 764, **R.** 108**Scolecosporae**

8: 744, 10: 51, 11: 432, 14: 817, 16: 789, 18: 163

Spores bacillar to filiform, typically hyaline, continuous or septate

I. Apothecia and epiderm concrete

1. Apothecia in black foliicole stroma-like spots

Rhytisma 8: 752, **R.** 82(incl. **Duplicaria** 8: 764)

2. Apothecia not in stroma-like spots

a. Apothecia and epiderm laciniate

Coccomyces 8: 744, **R.** 76

b. Apothecia and epiderm operculately circumscissile

Moutoniella 18: 163

II. Apothecia and epiderm not concrete

1. Apothecia round, laciniate

Coccophacidium **R.** 97

2. Apothecia oblong to elongate, hysterioid

Clithris 18: 165, **R.** 101**Family 31. STICTIDACEAE**

REHM 112

Apothecia sunken, finally more or less erumpent, round or elongate, single or grouped, typically waxy, rarely membranous or leathery, white or bright-colored, at least never black, splitting the epiderm laciniately or irregularly, hypothecium little developed.

Subfamily Eustictidae

REHM 113

Apothecia waxy, not deeply sunken, finally opening widely, and exposing the hymenium.

Hyalosporae

8:648, 10:44, 11:428, 14:806, 16:776, 18:146

Spores hyaline, 1-celled, globose to oblong

I. Spores globose

1. Asci 8-spored Lindauella 16:777
2. Asci many-spored Flaminia 16:777

II. Spores elliptic to oblong

1. Paraphyses long-pointed, much longer than the asci Stegia 8:733, R. 155
2. Paraphyses blunt, swollen or branched
 - a. Paraphyses thread-shaped or forked
 - (1) Apothecia round
 - (a) Apothecia blackish; ascus pore blue with iodine Trochila 8:728, R. 127
 - (b) Apothecia bright-colored
 - x. Ascus pore blue with iodine
 - (x) Paraphyses forked, enlarged and colored above Ocellaria 8:654, R. 133
 - (y) Paraphyses little if at all enlarged or colored *Habrostictis R. 137
 - y. Ascus pore not blue with iodine Naevia 8:658, R. 145
 - (2) Apothecia oblong or elongate
 - (a) Hymenium blue with iodine Xylographa 8:664, R. 153
 - (b) Hymenium not blue with iodine Briardia 16:776, R. 151
 - b. Paraphyses irregularly branched
 - (1) Asci 8-spored Propolis 8:648, R. 141
 - (2) Asci many-spored Propolina 8:654

PhaeosporaeSpores 1-celled, dark, oblong Stictopacidium R. 1215**Didymosporae**

8:666, 10:45, 11:428, 14:808, 16:778, 18:147

Spores 1-septate, typically hyaline or bright-colored, oblong

I. Paraphyses lackingCoccopeziza 10:45**II. Paraphyses present**

1. Spores blue or green Ploettnera 16:778
2. Spores hyaline
 - a. Spores with 1-2 cilia at each end; hysteroioid Iridionia 16:788
 - b. Spores muticate
 - (1) Paraphyses filiform or forked
 - (a) Apothecia round
 - x. Asci not blue with iodine *Naeviella R. 164
 - y. Asci blue with iodine
 - (x) Ascus pore alone blue with iodine Diplonaevia 8:666, R. 161
 - (y) Whole hymenium blue with iodine *Diplocryptis R. 158

- (b) Apothecia rounded, with flexuose clefts

Lauterbachia 16: 788

- (2) Paraphyses irregularly branched

- (a) Apothecia round; not blue with iodine

Propolidium 8: 667

- (b) Apothecia elongate; ascus pore blue with iodine

***Xyloglyphis** R. 170

Phragmosporae

8: 669, 10: 46, 11: 429, 14: 808, 16: 778, 18: 148

Spores 2-several-septate, hyaline, rarely darkish, oblong to elongate

- I. Spores somewhat fuscous

Eupropolis 8: 676

(incl. **Janseella** 16: 780)

- II. Spores hyaline

1. Paraphyses filiform or forked

- a. Asci not blue with iodine

***Merostictis** R. 164

- b. Asci blue with iodine

- (1) Ascus pore alone blue with iodine

Phragmonaevia 8: 674, R. 160

- (2) Whole hymenium blue with iodine

Cryptodiscus 8: 669, R. 158

2. Paraphyses branched; apothecia elongate

Xylogramma 8: 677, R. 169

Dictyosporae

8: 704, 11: 431, 14: 812, 16: 782, 18: 151

Spores muriform, typically hyaline, ovoid to oblong

- I. Asci 1-spored

Pleostictis 8: 703

- II. Asci 8-spored

1. Apothecia oblong, hysterioid

Melittiosporium 8: 704, R. 172

2. Apothecia round

- a. Apothecia urceolate

Platysticta 8: 703

- b. Apothecia disk-like

Delpontia 18: 151

Scolecosporae

8: 681, 10: 46, 11: 429, 14: 810, 16: 781, 18: 152

Spores bacillar or filiform, typically hyaline

- I. Asci 8-spored

1. Apothecia pilose

Lasiostictis 8: 696

2. Apothecia not pilose

- a. Spore cells separating

Schizoxylum 8: 697, R. 181

- b. Spore cells not separating

- (1) Paraphyses filiform or nearly so; asci cylindric

Stictis 8: 681, R. 175

(incl. **Karstenia** 8: 702, **Cerion**

18: 154)

- (2) Paraphyses much branched; asci clavate

Naemacyclus 8: 701, R. 173

- II. Asci many-spored

Carestiella 14: 810

Subfamily Ostropae

REHM 185

Apothecia membranous or leathery, deeply sunken, the scarcely opened tip alone erumpent.

- I. Spores 1-celled, elliptic; asci clavate **Laquearia R. 187**
- II. Spores many-celled, filiform; asci cylindric
 - 1. Apothecia cask-shaped, partly erumpent **Ostropa R. 188**
 - 2. Apothecia with only the thick ostiole erumpent **Robergea R. 189**

Family 32. TRYBLIDIACEAE

REHM 191

Apothecia sunken, then erumpent, often lobed, brown or black, membranous or horny; hypothecium well-developed, thick.

- I. Apothecia scattered
 - 1. Spores 1-septate
 - a. Spores with a mucose covering ***Tryblidis R. 194**
 - b. Spores without a mucose covering **Heterosphaeria R. 198**
 - 2. Spores 2-several-septate
 - a. Spores with a mucose covering **Tryblidiopsis R. 193**
 - b. Spores without a mucose covering **Odontotrema R. 204**
 - 3. Spores muriform **Tryblidium R. 196**
 - 4. Spores filiform ***Odontura R. 207**
- II. Apothecia cespitose or stromate; spores bacillar or filiform **Scleroderris R. 208**

Family 33. DERMATEACEAE

REHM 241

Apothecia sunken, then erumpent, cup-shaped to oblong, single or grouped, waxy, leathery or horny, mostly brownish or black; hypothecium more or less developed.

Hyalosporae

8: 547, 10: 36, 11: 422, 14: 794, 16: 762, 18: 121

Spores hyaline, 1-celled, globose to oblong

- I. Apothecia large, usually stalked or radicate at base
 - 1. Apothecia ear-shaped, more or less vertical, leathery
 - a. Spores ovoid to oblong **Midotis 8: 547**
 - b. Spores globose **Midotiopsis 18: 121**
 - 2. Apothecia urceolate or turbinate
 - a. Apothecia stalked; exciple and hypothecium prosenchymatic **Urnula 8: 548**
 - b. Apothecia stalked; exciple and hypothecium parenchymatic **Choriactis 18: 121**
 - c. Apothecia sessile, hairy; exciple parenchymatic, hypothecium prosenchymatic **Scytopezis 18: 122**
- II. Apothecia small, sessile or nearly so

1. Asci 8-spored

a. Apothecia more or less corky

Dermatea 8: 550, **R.** 246

b. Apothecia coriaceous to subcorneous

Cenangium 8: 556, **R.** 219(incl. *Ameghiniella* 8: 584, *Ephe-
lina* 8: 585)

2. Asci many-spored, or 8-spored and many-spored

Tympanis 8: 578, **R.** 264**Phaeosporae**

16: 764, 18: 127

Spores dark, 1-celled, oblong

I. Apothecia coriaceous, erumpent

Phaeangium 16: 764**Hyalodidymae**

8: 587, 10: 37, 11: 424, 14: 798, 18: 127

Spores hyaline, 1-septate, elliptic to oblong

I. Apothecia patellate, coriaceous to corneous

Cenangella 8: 587

II. Apothecia elongate, cleft, subcorneous

Angelinia 18: 129**Phaeodidymae**

18: 128

Spores dark, 1-septate, elliptic to oblong

I. Apothecia patellate, coriaceous

Phaeangella 18: 128**Hyalophragmiae**

8: 594, 16: 765, 18: 129

Spores hyaline, 2-several-septate, elliptic to fusoid

I. Apothecia waxy-membranous, pilose, urceolate

Crumenula 8: 600, **R.** 235**Phaeophragmiae**2: 757, **R.** 233

Spores dark, 2-several-septate, elliptic to fusoid

I. Apothecia hysterioid, cleft, coriaceous

Trybliidiella **R.** 233**Scolecosporae**

8: 601, 10: 37, 11: 425, 18: 130

Spores filiform, hyaline or subhyaline

I. Apothecia urceolate to cup-shaped, subcoriaceous

Godronia 8: 601, **R.** 237

II. Apothecia clavate, stipe corneous, disk submucose

Crinula 8: 606**Family 34. BULGARIACEAE****REHM** 444

Apothecia mostly superficial, cup-shaped to disk-shaped, usually smooth, gelatinous-fleshy or gelatinous-waxy, horn-like when dry; hypothecium gelatinous, more or less developed.

Hyalosporae

4: 609, 10: 38, 11: 425, 14: 801, 16: 766, 18: 131

Spores hyaline, 1-celled, globose to oblong

I. Spores globose**Pulparia 8: 612****II. Spores elliptic to bacillar****1. Apothecia in a lens-shaped gelatinous stroma****Physmatomyces 16: 770****2. Apothecia not in a stroma****a. Exciple lacking****(1) Asci 8-spored****(a) Apothecia microscopic, margined by changed paraphyses****Gloeopeziza 10: 41****(b) Apothecia larger; paraphyses not modified****Agyrium 8: 634, R. 450*****Agyrina 8: 636****(2) Asci 16-spored****b. Exciple present****(1) Lichenicole****Ahlesia 8: 633****(2) Not lichenicole****(a) Apothecia stipitate****Ombrophila 8: 613, R. 475****(incl. Stamnaria 8: 620, R. 465)****(b) Apothecia sessile****x. Asci 8-spored****(x) Apothecia smooth outside****m. Apothecia with an even disk****Orbilina 8: 621, R. 453****(incl. Bulgariopsis 18: 135)****n. Apothecia with a much folded disk****Haematomyces 8: 633****(y) Apothecia veined or roughened outside****m. Apothecia 1-2 cm. wide****Gloeocalyx 18: 132****n. Apothecia 2-9 cm. wide****Sarcosoma 10: 42, R. 497****y. Asci many-spored*****Myridium 8: 631****Phaeosporae**

8: 636, 10: 41, 14: 804, 16: 770, 18: 140

Spores dark, 1-celled, elliptic to fusoid

I. Apothecia turbinate, substipitate, closed at first, large**Bulgaria 8: 636, R. 494****II. Apothecia disciform, sessile, open at first, smaller****Bulgariella 8: 638****Hyalodidymae**

8: 639, 10: 42, 11: 427, 14: 805, 16: 771, 18: 142

Spores hyaline or subhyaline, 1-septate, elliptic to fusoid

I. Parasitic, urn-shaped; paraphyses forming an epithecium**Paryphedria 10: 43, R. 484****II. Saprophytic, disciform; epithecium lacking****Calloria 8: 639, R. 462**

Phaeodidymae

10: 42, 16: 771, 18: 142

Spores brown, 1-septate, elliptic to fusoid

- I. Apothecia subturbinate, sessile **Sorokinia 10: 42**

Phragmosporae

8: 641, 10: 43, 11: 427, 16: 773, 18: 143

Spores typically hyaline, 2-several-septate, fusoid

- I. Apothecia turbinate to disciform **Coryne 8: 641, R. 485**

Hyalodictyae

18: 145

Spores hyaline, muriform, ovoid

- I. Apothecia cupulate to plane **Dictyonina 18: 144**

Phaeodictyae

8: 646, 10: 44, 18: 144

Spores dark, muriform, ovoid to oblong

- I. Hymenium sinuate-gyrose, not margined **Haematomyxa 8: 646**
 II. Hymenium smooth, acute-margined **Sarcomyces 10: 44**

Scolecosporae

8: 646, 14: 805, 16: 775, 18: 145

Spores filiform, typically hyaline

- I. Apothecia without an exciple **Agyriopsis 14: 805**
 II. Exciple present
 1. Apothecia dark or black; spores medium **Holwaya 8: 646**
 2. Apothecia gray or bright-colored; spores very long **Ophiogloea 18: 145**

Family 35. PATELLARIACEAE

REHM 277

Apothecia mostly superficial, cupulate to disk-shaped, more rarely boat-shaped or oblong, usually dark or black, carbonous, leathery, corneous or waxy; hypothecium typically well-developed.

Hyalosporae

8: 769, 10: 52, 11: 433, 14: 818, 16: 791, 18: 165

Spores hyaline, 1-celled, globose to oblong

- I. Asci many-spored
 1. Spores globose **Biatorella 8: 469, R. 303**
 2. Spores allantoid **Biatorellina 18: 172**
 II. Asci 8-spored
 1. Apothecia oblong to elongate, cleft **Placographa R. 313**
 2. Apothecia round
 a. Parasitic on lichen thalli
 (1) Exciple present **Rhymbocarpus 14: 819**

- (2) Exciple lacking **Nesolechia** 10: 53, **R.** 315
- b. Saprophytic
 - (1) Paraphyses branched, forming an epithecium
 - (a) Asci club-shaped
 - x. Subicle absent **Patinella** 8: 769, **R.** 310
 - y. Subicle present, radiate **Actinoscypha** 8: 774
 - (b) Asci cylindric **Starbaeckia** 10: 53
 - (2) Paraphyses simple; epithecium none **Psilothecium** 18: 168

Phaeosporae

10: 55

Spores dark, 1-celled, globose to elliptic

- I. Apothecia patellate, margined, black **Lagerheimia** 10: 55

Hyalodidymae

8: 779, 10: 56, 11: 434, 14: 820, 16: 792, 18: 173

Spores hyaline, 1-septate, elliptic to fusoid

- I. Parasitic on lichen thalli **Scutula** **R.** 321
- II. Not lichenicolae
 - 1. Apothecia smooth, saprophytic **Patellea** 8: 783, **R.** 283
 - 2. Apothecia setose, parasitic on leaves **Johansonia** 8: 785

Phaeodidymae

8: 779, 10: 56, 11: 434, 14: 820, 16: 792, 18: 173

Spores dark, 1-septate, elliptic to fusoid

- I. Asci 8-spored
 - 1. Apothecia on a foliicole radiate subicle **Woodiella** 16: 794
 - 2. Apothecia not on a subicle
 - a. Apothecia round
 - (1) Apothecia superficial
 - (a) Saprophytic **Karschia** 8: 779, **R.** 345
 - (b) Parasitic on lichens ***Epilichen** 18: 177, **R.** 350
 - (2) Apothecia sunken, then erumpent
 - (a) Parasitic on lichens **Abrothallus** 8: 739, **R.** 358
 - (b) Saprophytic **Caldesia** **R.** 289
 - b. Apothecia elliptic to linear
 - (1) Apothecia irregularly elliptic or oblong
 - Melaspilea** 10: 58, **R.** 362
 - Hysteropatella** **R.** 367
 - (2) Apothecia boat-shaped to linear **Ravenelula** 8: 782
- II. Asci 16-spored **Pleospilis** 18: 179
- III. Asci many-spored

Hyalophragmiae

8: 786, 10: 59, 11: 434, 14: 821, 16: 795, 18: 179

Spores hyaline, 2-several-septate, elliptic to fusoid

- I. Parasitic on lichens **Mycobilimbia** 10: 60, **R.** 327
- II. Saprophytic

- | | |
|-------------------------------|---------------------------|
| 1. Apothecia twisted when dry | Durella 8: 790, R. 286 |
| 2. Apothecia not contorted | Patellaria R. 329 |
| | (incl. Lecanidion 8: 795) |

Phaeophragmiae

8: 786, 10: 59, 11: 434, 14: 821, 16: 795, 18: 179

Spores dark, 2-several-septate, elliptic to fusoid

- | | |
|---|---------------------------------|
| I. Asci 8-spored | |
| 1. Margin of cup involute, densely costate-rugose | Rhytidopeziza 10: 65 |
| 2. Margin not costate-rugose | |
| a. Apothecia erumpent | Pseudotryblidium 10: 65, R. 370 |
| b. Apothecia superficial | |
| (1) Parasitic typically on lichens | |
| (a) Apothecia round | Leciographa 10: 61, R. 372 |
| (b) Apothecia elliptic to elongate | *Lecoglyphis R. 380 |
| (2) Saprophytic | *Mycolecis, R. 372, 10: 61 |
| II. Asci many-spored | |

Dictyosporae

8: 802, 11: 435, 14: 823, 18: 185

Spores hyaline or subhyaline, muriform, ovoid to oblong

- | | |
|---|---------------------|
| I. Apothecia lacinate, depressed-spheroid | Blitrydium 8: 802 |
| II. Apothecia not lacinate, patellate | Tryblidaria 18: 186 |

Scolecosporae

8: 807, 10: 65, 11: 435, 14: 823, 16: 798

Spores hyaline or subhyaline, bacillar to filiform

- | | |
|------------------------------------|----------------------------|
| I. Spores separating at the joints | Bactrospora 10: 67, R. 344 |
| II. Spores not separating | |
| 1. Apothecia sessile | |
| a. Parasitic | Mycobacidia 10: 66, R. 337 |
| b. Saprophytic | Pragmopara R. 339 |
| | (incl. Scutularia 8: 807) |
| 2. Apothecia stalked, turbinate | |
| a. Parasitic | *Parathalle R. 343 |
| b. Saprophytic | Lahmia 10: 65, R. 341 |

Family 36. CALICIACEAE

REHM 388, ZAHLBRUCKNER 80

Mycelium inconspicuous and saprophytic, or parasitic on algae, forming a powdery, crustose, foliose or fruticose thallus; apothecia sessile or stalked, cup- to top-shaped, opening more or less completely, asci disappearing very early and the disk then covered with a persistent mass of spores and paraphyses, i. e., mazaedium; exciple prosenchymatic, horny, proper or thalline.

- | |
|---|
| I. Mycelium saprophytic, at least not forming a thallus |
| 1. Spores 1-celled, globose or globoid |

- a. Spores clear or merely yellowish
 - (1) Algae present but not forming a thallus
Farriolla 83
 - (2) Algae lacking
 - (a) Asci long and slender stalked, ovoid above
Caliciopsis R. 388
 - (b) Asci cylindric
Roesleria 8: 826, R. 396
- b. Spores dark
 - (1) Apothecia black, nearly sessile
Sphinctrina 83, R. 389
 - (2) Apothecia bright-colored, with a slender stalk
*Eucyphelis R. 392
(Cyphelium Rehm)
- 2. Spores typically 2-several-celled
 - a. Spores 2-celled
 - (1) Apothecia sessile
Acolium R. 398
 - (2) Apothecia with a slender stalk
Mycocalicium R. 401
 - b. Spores 3-several-celled
Stenocybe 82 R. 413
- II. Mycelium forming a thallus with algae
 - I. Thallus crustose
 - a. Spores 1-celled, globose or globoid
 - (1) Asci 8-spored
 - (a) Spores dark; disk more or less flat
 - x. Apothecia stalked
Chaenotheca 81
 - y. Apothecia sessile
*Holocyphis 84
 - (b) Spores clear or yellowish; disk globose
Coniocybe 82
 - (2) Asci many-spored
Tylophorella 85
 - b. Spores 2-several-celled, transeptate or muriform
 - (1) Spores transeptate
 - (a) Spores 2-celled, dark or brown
 - x. Apothecia stalked
 - (x) Apothecia long-stalked
Calicium 81
 - (y) Apothecia with short thick stalk
Pyrgidium 83
 - y. Apothecia sessile
 - (x) Algae Pleurococcus
Cyphelium 83
 - (y) Algae Chroolepus
 - m. Proper exciple alone present
*Dipyrgis 84
 - n. Thalline exciple also present
*Ditylis 84
 - (b) Spores 3-many-celled
 - x. Proper exciple alone present
Pyrgillus 84
 - y. Thalline exciple also present
Tylophorum 84
 - (2) Spores muriform
Pseudacolium 84
 - 2. Thallus foliose
 - a. Thallus of horizontal scales with marginal apothecia
Calycidium 85

- b. Horizontal scales sterile; apothecia on cylindric podetia
Tholurna 85
- 3. Thallus fruticose
 - a. Thallus hollow; apothecia on the under side
Pleurocybe 85
 - b. Thallus with solid medulla; apothecia terminal
 - (1) Apothecia without thalline covering, goblet-like
Acroscyphus 86
 - (2) Apothecia enclosed in a globose thalline exciple, which finally opens irregularly at the top
Sphaerophorus 86

Family 37. CHRYSOTRICHACEAE

ZAHLEBRUCKNER 117, 127

Apothecia disk-form, margined, asci persistent; mazaedium lacking, thallus uniform, cobwebby, cottony or spongy, loose, without layers, algae *Palmella*, *Pleurococcus*, *Chroolepus* or *Cladophora*.

- I. Thallus with *Palmella* or *Pleurococcus*
 - 1. Spores 1-celled
Crocynia 242
 - 2. Spores 2-4-celled
Chrysothrix 117
- II. Thallus with *Chroolepus*; spores clear
 - 1. Spores 1-celled
***Holocoenis 128**
 - 2. Spores 2-celled
Coenogonium 127
- III. Thallus with *Cladophora*; apothecia lacking
Racodium 128

Family 38. COLLEMATACEAE

ZAHLEBRUCKNER 154, 158, 167, 168

Apothecia disk-form or pitcher-form, with persistent asci; thallus more or less gelatinous when moist, mostly without layers, always with blue-green algae, scaly, foliose or fruticose, rarely crustose.

- I. Algae *Gloeocapsa*, *Chroococcus* or *Xanthocapsa*; spores typically 1-celled, colorless
Subfamily Pyrenopsidae 158
- 1. Algae *Gloeocapsa*
 - a. Thallus crustose, scaly or dwarf fruticose
 - (1) Spores 1-celled
 - (a) Asci 8-spored
Pyrenopsis 159
 - (b) Asci 32-spored
***Pleopyrenis 160**
 - (2) Spores 2-celled
Cryptothela 159
 - b. Thallus foliose, of a single leaf; spores clear, 1-celled
Phylliscidium 160
 - c. Thallus fruticose, with rhizoids; spores clear, 1-celled
Synalissa 160
- 2. Algae *Chroococcus*
 - a. Thallus crustose; apothecia more or less open
Pyrenopsidium 160
 - b. Thallus foliose, of one leaf, umbilicate; apothecia closed
Phylliscum 161

3. Algae *Xanthocapsa*
 - a. Thallus crustose
 - (1) Spores 1-celled
 - (a) Hymenium covered with a mass of algae and hyphae
Gonohymenia 161
 - (b) Hymenium without epithecial mass
 - x. Thallus pseudoparenchymatic at margin
Forssellia 161
 - y. Thallus nowhere pseudoparenchymatic
Psorotichia 161
 - (2) Spores 2-celled; apothecia closed
Collemopsidium 161
 - b. Thallus of one leaf, umbilicate, often lobed
 - (1) Thallus pseudoparenchymatic
Anema 162
 - (2) Thallus not pseudoparenchymatic
 - (a) Spores 1-celled
 - x. Hyphae loose, net-like at margin
Thyrea 162
 - y. Hyphae perpendicular to the margin
Jenmania 162
Paulia 163
 - (b) Spores 2-celled
 - c. Thallus fruticose, branched, upright
 - (1) Thallus without layers
 - (a) Asci 8-spored
Peccania 163
 - (b) Asci 12-many-spored
***Pleoconis 164**
 - (2) Thallus layered, with a cortex
Phloeopeccania 164
- II. Thallus with *Nostoc*; spores clear
Subfamily Collematae 168
 1. Apothecia with proper exciple only, biatorin
 - a. Spores 1-celled
 - (1) Spores globose to fusoid, straight
 - (a) Thallus crustose, scarcely gelatinous
Leprocollema 170
 - (b) Thallus scaly or dwarf fruticose, gelatinous
Leciophysma 170
Koerberia 173
 - (2) Spores needle-shaped, twisted
 - b. Spores transeptate, 2-many-celled
 - (1) Spores 2-celled; thallus without cortex
Homothecium 171
 - (2) Spores 4-8-celled; thallus with cortex
Arctomia 173
 2. Apothecia with thalline exciple, lecanorin
 - a. Spores 1-celled
 - (1) Thallus scaly or dwarf fruticose; spores thin-walled
 - (a) Thallus without cortex
Physma 170
 - (b) Thallus with pseudoparenchymatic cortex
Lemmopsis 171
 - (2) Thallus large-leaved; spores thick-walled or mucose
Dichodium 171
 - b. Spores transeptate to muriform
 - (1) Thallus without cortex

- (a) Spores 2-celled ***Dicollema 172**
 - (b) Spores transeptate, many-celled **Collema 171**
 - (c) Spores muriform **Blennothallia 172**
 - (2) Thallus with a pseudoparenchymatic cortex on one or both sides or pseudoparenchymatic throughout
 - (a) Spores transeptate, 3-many-celled **Leptogiopsis 175**
 - (b) Spores muriform **Leptogium 174**
- III. Thallus with Scytonema or Stigonema; spores colorless
- Subfamily Ephebae 154**
- I. Thallus crustose to scaly
 - a. Thallus uniform, not corticate
 - (1) Spores 1-celled **Pterygiopsis 157**
 - (2) Spores 4-celled **Petractis 124**
 - b. Thallus corticate above **Porocyphus 157**
 - 2. Thallus dwarf fruticose, much branched, dark
 - a. Apothecia sunken in swellings of the thallus
 - (1) Spores 1-celled; paraphyses present **Ephebeia 155**
 - (2) Spores 2-3-celled **Ephebe 155**
 - b. Apothecia superficial
 - (1) Thallus without pseudoparenchymatic cortex or central medulla
 - (a) Paraphyses capitate, septate **Spilonema 154**
 - (b) Paraphyses filiform, not septate **Thermutis 154**
 - (2) Thallus with large-celled pseudoparenchymatic cortex and central medulla
 - (a) Cortex of one row of cells; spores 2-celled **Leptodendriscum 155**
 - (b) Cortex of several rows
 - x. Spores 1-celled **Leptogidium 156**
 - y. Spores 2-celled **Polychidium 156**
- IV. Algae Rivularia; spores clear **Subfamily Lichinae 164**
- I. Apothecia disk-form; thallus scaly to granular
 - a. Apothecia with proper exciple; algae horizontal **Pterygium 165**
 - b. Apothecia with thalline exciple; algae erect **Steinera 166**
 - 2. Apothecia almost perithecioid; thallus dwarf fruticose
 - a. Algae in the middle of the thallus and parallel with the long axis of the branches **Lichinodium 166**
 - b. Algae absent from the middle but marginal beneath the cortex
 - (1) Algae parallel with the long axis of the branches **Lichina 167**
 - (2) Algae perpendicular to the long axis
 - (a) Paraphyses present **Lichinella 166**
 - (b) Paraphyses absent **Homopsella 167**

Family 39. PELTOPHORACEAE

ZAHLEBRUCKNER 122, 176, 190

Thallus firm, not at all gelatinous, crustose or foliose, more or less lobed and somewhat erect at the margin but never truly fruticose, typically attached to the substratum by rhizoids or by a navel, with a pseudoparenchymatic cortex on one or both sides or pseudoparenchymatic throughout; apothecia typically sunken in the thallus or grown together with it on the whole under side, more or less margined by the thallus, but a proper exciple lacking.

I. Thallus uniform to crustose; algae Protococcus, rarely Pleurococcus

Subfamily Ectolechiaae 122

1. Spores transeptate, usually 2-3-celled

a. Paraphyses not branched

(1) Paraphyses free; no algae below the hypothecium

Asterothyrium 123

(2) Paraphyses united; algae below the hypothecium

Lecaniella 124

b. Paraphyses branched and united

(1) Spores 2-celled

Actinoplaca 124

(2) Spores many-celled

Tapellaria 243

2. Spores muriform

a. Asci 1-spored; hypothecium without algae

(1) Paraphyses unbranched, free

Lopadiopsis 123

(2) Paraphyses branched, united

(a) Epithecium without algae

Sporopodium 123

(b) Epithecium with algae

***Gonothecis 123**

b. Asci 8-spored; hypothecium with algae below

Arthotheliopsis 124

II. Thallus foliose or foliose scaly, rarely subfruticose; algae typically bluegreen, rarely bright-green

1. Apothecia not marginal; thallus pseudoparenchymatic throughout

Subfamily Heppiae 176

One genus, parasitic on Scytonema

Heppia 177

2. Apothecia typically marginal or even with the thallus; thallus layered

Subfamily Peltophorae 190

a. Thallus foliose, usually large-leaved

(1) Apothecia on the upper side of the thallus

(a) Apothecia marginal on lobes of thallus; lower surface of thallus without cortex

x. Algae Nostoc

†Peltophora 194

(Peltigera)

y. Algae Palmella (Dactylococcus)

***Chloropeltis 194**

(b) Apothecia superficial; lower surface with cortex below the apothecia

x. Algae Nostoc

Solorina 192

y. Algae Palmella

Solorinina 192

(2) Apothecia on the under side of elongate thallus lobes; thallus completely corticate on both sides

x. Algae Nostoc

Nephromium 194

- y. Algae Palmella Nephroma 193
- b. Thallus minute, small triangular scales radiating from the apothecium
 - (1) Asci 8-spored; spores brownish, 4-6-celled Asteristium 191
 - (2) Asci many-spored; spores clear, 2-celled Solorinella 192

Family 40. LECIDEACEAE

ZAHLEBRUCKNER 114, 129, 138, 144

Thallus firm, not gelatinous, crustose, scaly or foliose, exceptionally dwarf fruticose, with rhizoids or a navel in the larger forms, with or without cortex; apothecia superficial or somewhat sunken at first, with a characteristic proper exciple, very rarely lacking, but without a thalline exciple. The absence of the latter distinguishes this family from the Parmeliaceae.

I. Thallus uniform or crustose

- 1. Algae Chroolepus or Phylactidium Subfamily Lecanactidae 114
 - a. Proper exciple lacking, or rudimentary and lateral
 - (1) Spores transeptate; exciple mostly absent Schismatomma 115
 - (2) Spores muriform; exciple thin, complete Melampyridium 116
 - b. Proper exciple well-developed, carbonous
 - (1) Spores 2-celled Arthoniactis 115
 - (2) Spores 4-many-celled Lecanactis 115
 - (3) Spores needle-shaped *Scoleactis 115
- 2. Algae Pleurococcus or Palmella Subfamily Lecideae 129
 - a. Thallus uniform-crustose, loose, without cortex; spores clear, fusoid, 4-celled Pilocarpum 116
 - b. Thallus typically crustose, firm
 - (1) Asci 1-8-spored, rarely 16-32-spored
 - (a) Spores 1-celled
 - x. Spores clear
 - (x) Asci 1-2-spored; spores large, thick-walled Mycoblastus 133
 - (y) Asci 8-spored
 - m. Exciple black, carbonous Lecidea 130
 - n. Exciple clear or colored, not carbonous Biatora 132
 - (z) Asci 16-32-spored *Pleolecis 132
 - y. Spores brown Orphniospora 133
 - (b) Spores 2-celled
 - x. Spores clear
 - (x) Paraphyses simple
 - m. Spores thick-walled, large Megalospora 134
 - n. Spores thin-walled, small
 - (m) Thallus with cortex *Diphloeis 136
 - (n) Thallus without cortex

- r. Exciple and hypothecium dark or black
Catillaria 133
 - s. Exciple and hypothecium clear or bright
Biatorina 134
 - (y) Paraphyses branched, in a slimy hymenium
***Diphanis 138**
 - y. Spores brown; paraphyses branched
***Diphaeis 138**
 - (c) Spores 4-many-celled
 - x. Spores elliptic to long-fusoid
 - (x) Thallus not corticate, crustose-uniform
 - m. Spores thin-walled **Bacidia 135**
 - n. Spores thick-walled **Bombyliospora 136**
 - (y) Thallus corticate, warty to scaly
Toninia 136
 - y. Spores needle-shaped or filiform
†Scolecosporis 136
(Scoliciosporum)
 - (d) Spores muriform
 - x. Spores clear
 - (x) Spores with mucus covering; paraphyses branched
***Phalodictyum 138**
 - (y) Spores without mucus cover; paraphyses simple
Lopadium 137
Rhizocarpum 137
 - y. Spores brown, mucose
 - (2) Asci many-spored
 - (a) Exciple bright-colored, soft **Biatorella 151**
 - (b) Exciple dark or black, hard **Sporostatia 152**
- II. Thallus scaly or foliose; algae *Pleurococcus* or *Palmella*
Subfamily Phyllopsorae 138
- 1. Thallus scaly, with rhizoids; disk even
 - a. Spores 1-celled
 - (1) Hypothecium pseudoparenchymatic
Phyllopsora 138
 - (2) Hypothecium not pseudoparenchymatic
 - (a) Exciple clear or bright **Psoromaria 183**
 - (b) Exciple dark or black **Psora 132**
 - b. Spores transeptate **Psorella 139**
 - 2. Thallus mostly with one large leaf; disk often furrowed
Subfamily Gyrophorae 147
 - a. Spores 1-celled; disk furrowed in most of the species
Gyrophora 147
 - b. Spores transeptate
 - (1) Spores 2-many-celled, colorless ***Merophora 148**
 - (2) Spores 2-celled, brown **Dermatiscum 149**
 - c. Spores muriform, dark **Umbilicaria 149**
- III. Thallus dwarf fruticose, of low erect slightly branched podetia, horizontal
thallus lacking; spores clear, 2-celled **Sphaerophoropsis 133**

Family 41. CLADONIACEAE

ZAHLEBRUCKNER 139

Thallus of two kinds, one horizontal on the substratum, crustose, scaly to foliose, the other consisting of erect clubshaped, cupshaped or filiform, simple or branched podetia; algae typically *Pleurococcus*; apothecia terminal or lateral, mostly convex to globose, with proper exciple only, except in *Chlorocaulum*; spores colorless.

I. Apothecia with proper exciple**1. Podetia short, simple, rarely forked; apothecia terminal****a. Podetia equal, not broadened above****(1) Podetia covering the surface****(a) Hypothecium clear****x. Spores 1-celled*****Baeomyces* 140****y. Spores transeptate****(x) Spores elliptic to rod-shaped****m. Spores 2-celled******Dibaeis* 140****n. Spores 4-celled****(m) Algae bluegreen******Cyanobaeis* 141****(n) Algae yellow-green*****Heteromyces* 141****(y) Spores filiform, many-celled*****Gomphyllus* 141****(b) Hypothecium dark; spores 1-celled*****Pilophorum* 142****(2) Podetia marginal on a foliose thallus*****Gymnoderma* 142****b. Podetia broadened above into lobes or tongues bearing the hymenium on one side****(1) No algae below the hymenium; medulla uniform*****Glossodium* 142****(2) Algae below the hymenium; medulla with thicker strands*****Thysanothecium* 142****2. Podetia funnellform, cupshaped or more or less branched, large****a. Spores 1-celled; podetia hollow*****Cladonia* 143****b. Spores 4-many-celled*****Stereocaulum* 146****c. Spores muriform*****Argopsis* 146****II. Apothecia with thalline exciple******Chlorocaulum* 146****Family 42. PARMELIACEAE**

ZAHLEBRUCKNER 118, 124, 150, 195, 199, 207, 216

Thallus of one kind, podetia lacking, firm, not gelatinous, crustose, scaly, foliose or fruticose, often with rhizoids, typically layered, algae typically yellow green, but bluegreen in two subfamilies; apothecia characterized by a thalline exciple, which is rarely lacking, superficial, rarely immersed

I. Thallus typically crustose, sometimes scaly or lobed at the margin**1. Algae *Pleurococcus* or *Parmella*, rarely *Protococcus*****a. Asci 1-32-spored, mostly 8-spored****(1) Disk conspicuous, not perithecioid **Subfamily *Leonorae* 199******(a) Spores 1-celled**

- x. Asci 1-8-spored
 - (x) Paraphyses simple, free
 - m. Spores straight, elliptic to oblong
 - (m) Thallus bright yellow; pycnoconidia elliptic
Candelariella 207
 - (n) Thallus rarely bright yellow; conidia filiform
 - r. Cortex not pseudoparenchymatic
Lecanora 201
 - s. Cortex pseudoparenchymatic
Psoroma 183
 - n. Spores crescent to falcate
Harpidium 199
 - (y) Paraphyses branched and united
Ochrolechia 203
 - y. Asci 12-many-spored
**Myriolecis* 202
- (b) Spores 2-celled
 - x. Paraphyses simple, free
 - (x) Sterigmata exobasidial
Lecania 204
 - (y) Sterigmata endobasidial
Icmadophila 204
(incl. *Placolecania* 205)
 - y. Paraphyses branched, united
Calenia 205
- (c) Spores 4-many-celled
 - x. Apothecia superficial
 - (x) Asci 1-8-spored
 - m. Thallus with cortex
Haematomma 205
 - n. Thallus without cortex
 - (m) Paraphyses forked; spores moniliform, 30-40-celled
Conotrema 121
 - (n) Paraphyses simple; spores not moniliform, 8-30-celled
**Adermatis* 204
 - (y) Asci 16-32-spored
**Dyslecanis* 204
 - y. Apothecia immersed; thallus without cortex
 - (x) Paraphyses simple, free
Phlyctella 206
 - (y) Paraphyses branched and united
Phlyctidia 206
- (d) Spores muriform
 - x. Spores clear, at least not dark
 - (x) Apothecia superficial, broad
Myxodictyum 206
 - (y) Apothecia immersed, small
Phlyctis 206
 - y. Spores dark
Diploschistes 122
- (2) Disk small, more or less closed and perithecioid; apothecia mostly sunk-
en in warts
Subfamily Pertusariae 195
 - (a) Spores 1-celled
 - x. Paraphyses simple, free
Perforaria 195
 - y. Paraphyses branched and united
Pertusaria 195

- (b) Spores 2-celled; paraphyses branched and united
Varicellaria 198
- b. Asci many-spored; spores 1-celled, more rarely 2-celled
Subfamily Acarosporae 150
 - (1) Apothecia superficial
 - (a) Thallus bright yellow ***Pleochroma 207**
 - (b) Thallus not bright yellow **Maronea 152**
 - (2) Apothecia typically immersed, with mostly narrow disk
Acarospora 152
- 2. Algae *Chroolepus* or *Phyllactidium*; apothecia with thalline exciple, at least when young
Subfamily Gyalectae 124
(incl. *Thelotremae* 118)
 - a. Thalline exciple present and persistent
 - (1) Spores 1-celled **Jonaspis 125**
 - (2) Spores 2-celled ***Ocellis 118**
 - (3) Spores 4-many-celled
 - (a) Spores clear
 - x. Apothecia sprouting repeatedly from the margin, forming erect forked chains of apothecia **Polystroma 121**
 - y. Apothecia not in chains
 - (x) Algae *Chroolepus*
 - m. Exciple and hypothecium clear
Ocellularia 118
 - n. Exciple and hypothecium dark, hard
Sagiolechia 126
 - (y) Algae *Phyllactidium* **Phyllophthalmaria 120**
 - (b) Spores brown **Phaeotrema 119**
 - (4) Spores muriform
 - (a) Spores clear
 - x. Paraphyses simple, free **Thelotrema 119**
 - y. Paraphyses branched and united
***Phanotylum 121**
 - (b) Spores dark or brown
 - x. Paraphyses simple, free **Leptotrema 120**
 - y. Paraphyses branched and united
 - (x) Apothecia sunken in groups in a stroma
Tremotylum 120
 - (y) Apothecia not in a stroma
Gyrostomum 120
 - b. Thalline exciple present at first, then more or less completely disappearing
 - (1) Asci 1-8-spored
 - (a) Spores 2-celled **Microphiale 125**
 - (b) Spores 4-many-celled **Bryophagus 126**
 - (c) Spores muriform **Gyalecta 125**
 - (2) Asci 12-many-spored
 - (a) Spores 2-celled **Ramonia 125**
 - (b) Spores 6-many-celled **Pachyphiale 126**
- 11. Thallus typically foliose or fruticose, sometimes small-leaved or scaly; thalline exciple sometimes lacking

1. Algae Pleurococcus, Protococcus, Palmella or Cystococcus
 - a. Asci many-spored; apothecia caespitose on a one-leaved thallus
Glypholecia 153
 - b. Asci 1-32-spored
 - (1) Thallus foliose, horizontal or upright, rarely fruticose, typically dorsiventral
 - (a) Thallus with cyphellae or pseudocyphellae or furnished with well-developed clubshaped cephalodia
 - x. Lower side of thallus with cyphellae or pseudocyphellae
 - (x) Apothecia with thalline exciple
 - m. Spores 2-celled
 - (m) Spores clear ***Diphanosticta 189**
 - (n) Spores brown ***Diphaeosticta 189**
 - n. Spores 4-many-celled
 - (m) Spores clear ***Phanosticta 189**
 - (n) Spores brown **Sticta 188**
 - (y) Apothecia with proper exciple only
***Dysticta 189**
 - y. Lower side of thallus without cyphellae or pseudocyphellae; thallus typically with cephalodia
 - (x) Algae Protococcus **Lobaria 185**
 - (y) Algae Cystococcus, i. e., in mucose colonies
***Cystolobis 188**
 - (b) Thallus typically without cyphellae, pseudocyphellae, and cephalodia
Subfamily Parmeliae 207
 - x. Asci 16-32-spored **Candelaria 209**
 - y. Asci 2-8-spored
 - (x) Cortex on both sides of thallus
 - m. Apothecia superficial
 - (m) Lower cortex more or less cellular, usually with rhizoids
Parmelia 211
(incl. **Parmeliopsis 209**)
 - (n) Lower cortex without rhizoids, spongy, of net-like hyphae
Anzia 213
 - n. Apothecia marginal or terminal; thallus often fruticose
 - (m) Disks upright from the beginning
Cetraria 214
 - (n) Disks on the under side of thallus lobes, later upright by the twisting of the lobes
Nephromopsis 216
 - (y) Cortex on the upper side alone
 - m. Apothecia superficial; lower surface without cyphellae
Physcidia 209
 - n. Apothecial terminal; cyphellae on lower side
Heterodea 208
 - (2) Thallus fruticose, erect or hanging, often long and hair-like; radial, rarely dorsiventral in structure **Subfamily Usneae 216**
 - (a) Spores 1-celled or unknown

- x. Medulla traversed by varying solid strands
Letharia 218
 - y. Medulla uniform without strands
 - (x) Cortex formed of hyphae running lengthwise
 - m. Spores clear; asci 8-spored
Bryopogon 219
 - n. Spores brownish; asci 4-spored
Alectoria 219
 - (y) Cortex of hyphae more or less perpendicular to the long axis, pseudoparenchymatic
 - m. Medulla of hyphae running lengthwise
 - (m) Medulla loose, not horny; apothecia unknown
Thamnolia 225
 - (n) Medulla firm, horny
 - r. Thallus low, podetium-like; apothecia unknown
Siphula 225
 - s. Thallus fruticose, elongate; apothecia known
 - (r) Thallus dorsiventral, without fibrous branches; medulla and cortex not separable
Everniopsis 218
 - (s) Thallus radial, usually with fibrous branches; medulla and cortex readily separable
Usnea 223
 - n. Medulla of hyphae running in all directions
 - (m) Thallus more or less hollow
 - r. Thallus swollen, tubular
Dactylina 218
 - s. Thallus not swollen and tubular
 - (r) Thallus fruticose, erect
Dufourea 218
 - (s) Thallus podetium-like; apothecia unknown
Endocena 226
 - (n) Thallus flattened, not hollow, dorsiventral
Evernia 217
 - (b) Spores 2-celled
Ramalina 220
 - (c) Spores muriform, brown, large; asci 1-spored
Oropogon 220
2. Algae bluegreen, Scytonema or Nostoc
 - a. Thallus large-leaved, with cyphellae, pseudocyphellae or cephalodia
 - (1) Lower side of thallus with cyphellae or pseudocyphellae
 - (a) Apothecia with thalline exciple
 - x. Spores clear, bacillar to acicular, 2-8-celled
***Podostictina 189**
 - y. Spores brown
 - (x) Spores 2-celled
Stictina 189
 - (y) Spores 4-celled
***Merostictina 189**
 - (b) Apothecia with proper exciple only
***Dystictina 190**

(2) Cyphellae or pseudocyphellae absent; cephalodia usually present

(a) Apothecia with thalline exciple

***Phycodiscis 188**

(b) Apothecia with proper exciple only

Lobarina 188

b. Thallus scaly to small-leafy, sometimes crustose, exceptionally large-leafy, without cyphellae, etc.

Subfamily Pannariae 178

(1) Lower surface of thallus scarcely or not at all veined; spores 1-2-celled

(a) Upper cortex well-developed, distinct

x. Upper cortex with hyphae perpendicular to it

(x) Upper cortex hairy or pilose

Erioderma 183

(y) Upper cortex not hairy

m. Apothecia with thalline exciple

(m) Spores 1-celled; algae Nostoc

Pannaria 181

(n) Spores 2-celled; algae Scytonema

Massalongia 183

n. Apothecia with proper exciple only

(m) Spores 1-celled

Parmeliella 181

(n) Spores 2-many-celled

Placynthium 181

y. Upper cortex of horizontal hyphae

Coccocarpia 184

(b) Upper cortex indistinct; algae occupying nearly the whole width of the thallus

Lepidocellema 180

(2) Lower surface of thallus with distinct forked veins; spores 4-celled

Hydrothyria 184

Family 43. PHYSICIACEAE

ZAHLBRUCKNER 226-234

Thallus crustose, foliose or fruticose, as in Parmeliaceae; apothecia mostly lecanorin, sometimes with proper exciple alone; spores normally 2-celled, with more or less thickened cross-wall, often traversed by a line-like canal, or exceptionally 1-many-celled or muriform

I. Spores 2-celled

1. Spores clear

a. Thallus without cortex, uniform or crustose

(1) Apothecia with thalline exciple **Caloplaca 227**

(2) Apothecia with proper exciple only

Blastenia 226

b. Thallus with cortex, foliose or fruticose

(1) Thallus foliose, horizontal or ascending, dorsiventral, with rhizoids, cortex pseudoparenchymatic on both sides

Xanthoria 229

(2) Thallus fruticose, erect, radial, cortex of conglutinate longitudinal hyphae

Theloschistes 230

2. Spores dark or brown

a. Thallus without cortex, uniform or crustose

- (1) Apothecia with thalline exciple
 - (a) Asci 8-spored Rinodina 232
 - (b) Asci 12-24-spored *Pleorinis 233
- (2) Apothecia with proper exciple only Buellia 231
- b. Thallus with cortex, foliose or fruticose
 - (1) Upper cortex of perpendicular hyphae, pseudoparenchymatic
 - (a) Apothecia with thalline exciple
 - x. Hypothecium clear Physcia 234
 - y. Hypothecium black Dirinaria 235
 - (b) Apothecia with proper exciple only Pyxine 234
 - (2) Upper cortex of hyphae parallel with the long axis, not pseudoparenchymatic; apothecia with proper exciple Anaptychia 236
- II. Spores 3-4-celled
 - 1. Spores clear
 - a. Thallus without cortex, uniform or crustose
 - (1) Apothecia with thalline exciple *Meroplacis 228
 - (2) Apothecia with proper exciple only Xanthocarpia 227
 - b. Thallus with cortex, fruticose Niorma 230
 - 2. Spores brown
 - a. Thallus without cortex, uniform or crustose
 - (1) Apothecia with thalline exciple *Merorinis 233
 - (2) Apothecia with proper exciple alone Diplotomma 232
 - b. Thallus with cortex, foliose; exciple proper *Phragmopyxine 234
- III. Spores muriform, brown
 - 1. Thallus without cortex, uniform or crustose *Dictyorinis 233
 - 2. Thallus with cortex, foliose Hyperphyscia 236

Family 44. MOLLISIACEAE

REHM 503

Apothecia superficial or erumpent, cupulate to disk-shaped, mostly smooth, rarely with hairs, typically soft-waxy; distinguished from all other families by the typically brownish exciple, which is entirely parenchymatic, or at least about the base.

Subfamily Eumollisiae

Apothecia superficial from the beginning

Hyalosporae

Spores hyaline, 1-celled, globose to elliptic

- I. Apothecia not on a subicle
 - 1. Spores globose Mollisiella 18: 64
 - 2. Spores elliptic to fusoid Mollisia R. 511, 8: 321

- II. Apothecia on a subicle Tapesia R. 573, 8: 371

Hyalodidymae

Spores hyaline, 1-septate, elliptic to oblong

- I. Apothecia not on a subicle Niptera R. 549, 8: 480
- II. Apothecia on a subicle
1. Spores with a mucose covering Stictoclypeolum 18: 110
2. Spores not mucose
- a. Spores constricted, large, $50 \times 25 \mu$ Psorotheciopsis 16: 746
- b. Spores not constricted, small, $12 \times 5 \mu$ Linhartia 16: 744

Hyalophragmiae

Spores hyaline, 2-several-septate, elliptic to fusoid

- I. Apothecia not on a subicle or thallus Belonidium R. 561, 8: 496
- II. Apothecia on a subicle or thallus
1. Spores ciliate at each end Ciliella 16: 748
2. Spores not ciliate
- a. Apothecia on a subicle of hyphal threads Trichobelonium R. 590, 16: 747
- b. Apothecia on a parenchymatic thallus Pazschkea 14: 788
- (incl. Psorotheciella 16: 746)

Hyalodictyae

Spores hyaline, muriform, ovoid to oblong

- I. Subicle present; asci 1-4-spored; spores mucose †Melittosporis 16: 751
- (Melittosporiopsis)

Scolecosporae

Spores hyaline, filiform, usually septate

- I. Apothecia gregarious; subicle lacking Belonopsis R. 571, 16: 752

Subfamily Pyrenopezizae

Apothecia at first covered, then erumpent and more or less superficial

Hyalosporae

Spores hyaline, 1-celled, globose to oblong

- I. Apothecia bright-colored, on living leaves Pseudopeziza R. 596, 8: 723
- II. Apothecia dark-brown without, not on living leaves
1. Apothecia with bristles Pirottaea R. 636, 8: 386
2. Apothecia without bristles, but sometimes with projecting rows of cells
- a. Subicle lacking Pyrenopeziza R. 608, 8: 354
- b. Subicle present *Spilopezis R. 620

Phaeosporae

Spores dark or brownish, 1-celled, elliptic to oblong

- I. Apothecia leathery, bright-colored outside

Velutaria R. 645, 8: 488

Hyalodidymae

Spores hyaline, 1-septate, elliptic to fusoid

- I. Apothecia scarcely erumpent, bright colored

Fabraea R. 599, 8: 735

- II. Apothecia nearly superficial, dark-brown without

***Dibelonis** R. 638

Hyalophragmiae

Spores hyaline, 2-several-septate, oblong to fusoid

- I. Apothecia at last superficial, more or less roughened

Beloniella R. 638

Family 45. HELOTIACEAE

REHM 647

Apothecia mostly superficial, rarely erumpent or arising from a sclerotium, typically stalked, sometimes sessile, cupulate to disk-shaped, waxy; distinguished by an exciple which is completely prosenchymatic.

Subfamily Helotiae

Apothecia not hairy

Hyalosporae

Spores hyaline, 1-celled, globose to oblong

- I. Apothecia on a subicle

Eriopeziza R. 693

- II. Apothecia not on a subicle

1. Apothecia arising from a sclerotium, long-stalked

Sclerotinia R. 803, 8: 195

2. Apothecia not arising from a sclerotium

- a. Apothecia green, arising from a green substratum

Chlorosplenium R. 752, 8: 315

- b. Apothecia not on a green substratum

- (1) Apothecia margined by a row of triangular teeth

- (a) Apothecia stalked

Cyathicula R. 740, 8: 304

- (b) Apothecia sessile

***Pezoloma**

- (2) Apothecia without teeth

- (a) Asci many-spored

Comesia 8: 468

- (b) Asci typically 8-spored

- x. Apothecia sessile

Pezizella R. 653, 8: 275

- y. Apothecia stalked

- (x) Ascus pore blue with iodine

Helotium R. 772, 8: 210

(incl. **Ciboria** R. 754, 8: 201)

- (y) Ascus pore not blue with iodine

Phialea R. 708, 8: 251

(incl. **Helotium** in part)

Hyalodidymae

Spores hyaline, 1-septate, elliptic to fusoid

- I. Apothecia typically sessile *Eubelonis R. 685
- II. Apothecia stalked
 - 1. Stalk ridged or folded Lanzia 8: 479
 - 2. Stalk not ridged or folded Hymenoscypha R. 781

Hyalophragmiae

Spores hyaline, 2-several-septate, elliptic to fusoid

- I. Apothecia not toothed at margin
 - 1. Apothecia sessile Belonium R. 685, 8: 492
 - 2. Apothecia stalked
 - a. Subicle lacking
 - (1) Spores muticate
 - (a) Paraphyses colorless, epithecium lacking Belonioscypha R. 743
 - (b) Paraphyses colored, forming an epithecium Rutstroemia R. 763
 - (2) Spores 1-ciliate at each end *Belospora R. 744, 8: 488
 - b. Subicle present Massea 18: 99
- II. Apothecia with a row of triangular teeth at margin
 - 1. Apothecia sessile *Merodontis 18: 102
 - 2. Apothecia stalked Davincia 18: 101

Scolecosporae

Spores typically hyaline, filiform

- I. Apothecia sessile or merely narrowed below
 - 1. Apothecia smooth Gorgoniceps R. 690, 8: 504
 - 2. Apothecia hairy Arachnopeziza R. 698
- II. Apothecia stalked Pocillum R. 747, 8: 605

Subfamily Dasyscyphae

REHM 824

Apothecia hairy

Hyalosporae

Spores hyaline, 1-celled, globose to fusoid

- I. Spores globose Lachnellula R. 862, 8: 390
- II. Spores elliptic to fusoid
 - 1. Paraphyses lance-shaped, pointed
 - a. Apothecia sessile *Dyslachnum R. 868, 888
 - b. Apothecia stalked Lachnum R. 870
 - 2. Paraphyses filiform, blunt
 - a. Apothecia divided above into 3-6 lobes, black Arenaea 18: 75
 - b. Apothecia entire, rarely black

- (1) Apothecia hairy with distinct bristles
 - (a) Hairs shining, clear, non-septate, nearly solid
*Phallothrix R. 831
 - (b) Hairs dull, usually septate, hollow
 - x. Apothecia sessile *Dasypsis R. 829, 842
 - y. Apothecia stalked Dasyscypha R. 832, 8:432
- (2) Apothecia villose with projecting hyphae
Hyphoscypha 18:87

Hyalodidymae

Spores hyaline, 1-septate, elliptic to fusoid

- I. Spores at first 1-celled, but finally 2-celled
Lachnella R. 833, 8:391
(incl. Perrotia 18:90)

Hyalophragmiae

Spores hyaline, 2-several-septate, oblong to fusoid

- I. Paraphyses lance-shaped, pointed Erinella R. 910, 8:307
- II. Paraphyses bearing conidia at the tips Diplocarpa 18:110

Family 46. PEZIZACEAE

(Rhm. 243)

Apothecia typically 1-celled, sometimes 2-celled, sessile or stalked, usually clustered to discrete, smooth or hairy, fleshy or fleshy-waxy, rarely cartilaginous, usually medium to large forms.

Subfamily Pezizae

Apothecia smooth, i. e., without hairs

Hyalosporae

Spores hyaline, 1-celled, globose to fusoid

- I. Asci not blue with iodine
 - 1. Apothecia cleft on one side, ear-like Otidea R. 1023, 8:94
 - 2. Apothecia not ear-like
 - a. Spores globose
 - (1) Apothecia fleshy or fleshy-waxy
 - (a) Substipitate, parasitic Pitya R. 925, 8:209
 - (b) Sessile, terrestrial Detonia R. 927, 1269, 8:105
(Bariacea 8:111, Otidella 8:99)
 - (2) Apothecia cartilaginous †Peltophoromyces 16:720
(Peltogomyces)
 - b. Spores elliptic to fusoid
 - (1) Apothecia sessile
 - (a) Spores with reticulately thickened wall Aleuria R. 908
 - (b) Spores smooth or roughened
 - x. Apothecia not on a substrate Humaria R. 934, 8:118

- y. Apothecia on a subicle *Pyronema* R. 962, 8: 107
(incl. *Phycascus* 16: 709)
- (2) Apothecia stalked
 - (a) Stalk narrow, cylindric, mealy-rough, almost hairy
Macropodia R. 984, 8: 158
 - (b) Stalk mostly short and wide, not mealy-rough
 - x. Stalk large and thick, deeply furrowed
Phleboscypus R. 981, 18: 13
(*Acetabula*)
 - y. Stalk even or slightly furrowed
 - (x) Apothecia persistently cup-shaped
Geopyxis R. 971, 8: 63
 - (y) Apothecia finally open and flat
Discina R. 976, 8: 99
- II. Asci blue with iodine
 - 1. Apothecia cleft on one side, ear-like **Iotidea* R. 1028
 - 2. Apothecia not ear-like
 - a. Spores globose *Plicariella* R. 993
 - b. Spores elliptic to fusoid
 - (1) Apothecia sessile
 - (a) Apothecia with a milky juice *Galactinia* 8: 106
 - (b) Apothecia without milky juice
 - x. Apothecia not on a subicle
 - (x) Apothecia leathery, black *Urnula* R. 999, 8: 548
 - (y) Apothecia fleshy, not black
 - m. Apothecia on the surface of the ground
Plicaria R. 1000
(*Pustularia* in part)
 - n. Apothecia large, sunken, lobed
Peziza R. 1019, 8: 73 and 511
(*Pustularia* in part)
 - y. Apothecia on a subicle *Melachroia* R. 997
 - (2) Apothecia with a long, slender stalk
Tarzettia R. 1021

Phaeosporae

Spores dark, 1-celled, globose to oblong

- I. Spores globose *Phaeopezia* 8: 471, R. 995
- II. Spores elliptic
 - 1. Apothecia sessile *Aleurina* 18: 88
 - 2. Apothecia stalked **Podaleuris* 18: 88

Subfamily Scutelliniae

Apothecia setose or hairy

Hyalosporae

Spores hyaline, 1-celled, globose to fusoid

- I. Spores globose

- I. Spores smooth
 - a. Cup dark or black, more or less strigose at base
Pseudoplectania R. 1039, 8: 165
 - b. Cup bright-colored, hairy or setose
Sphaerospora R. 1037, 8: 188
 - 2. Spores warted or reticulate; cups white-hairy
Pyronemella R. 1038, 8: 194
 - II. Spores elliptic to fusoid
 - 1. Spores rostrate at base
Puttemansia 18: 98
 - 2. Spores muticate
 - a. Apothecia sunken in the ground, opening by lobes
Sepultaria R. 1075, 8: 166
 - b. Apothecia superficial
 - (1) Apothecia sessile
 - (a) Apothecia dark-hairy or ciliate
 - x. Apothecia uniformly dark-hairy
Pelodiscus 16: 1147, 18: 35
 - y. Apothecia also with long cilia at the margin
 - (x) Paraphyses clavulate, blunt
Scutellinia R. 1042, 8: 173
(*Lachnea*)
 - (y) Paraphyses equal, brown, pointed
Desmazierella R. 1041, 8: 386
 - (b) Apothecia bright-hairy or ciliate
 - x. Apothecia uniformly bright-hairy
**Leucopezis*
 - y. Apothecia with marginal cilia also
Neottiopezis 8: 190, R. 1068
 - (2) Apothecia stalked
 - (a) Apothecia dark or black
 - x. Stalk long, slender, mealy
Macropodia R. 984, 8: 158
 - y. Stalk short, thick with brown hairs and rhizoids
Plectania 8: 163, R. 1070
 - (b) Apothecia and hairs bright-colored
Sarcoscypha R. 1070, 8: 153
(incl. *Trichoscypha* 8: 160, *Pilocratera* 18: 31)
- Phaeosporae**
- Spores hyaline, 1-celled, globose to fusoid
- I. Apothecia with a cylindric verrucose stalk
Phaeomacropus 16: 740
 - II. Apothecia sessile
**Trichaleuris* 18: 89

Family 47. HELVELLACEAE

REHM 1134

Apothecia typically terrestrial, and stalked, sometimes sessile, club-shaped, conical or saddle-shaped, rarely flat, mostly smooth, fleshy, cartilaginous or rarely gelatinous; usually large forms.

Subfamily Rhizinae

Apothecia sessile, flat, arched or irregularly globose

- I. Spores globose *Sphaerosoma* R. 1140, 8: 56
- II. Spores elliptic or fusoid
 - 1. Spores elliptic, rounded at ends *Psilopezia* R. 1137, 8: 152
(incl. *Peltidium* 18: 11)
 - 2. Spores fusoid, pointed at the thickened ends *Rhizina* R. 1138, 8: 57

Subfamily Helvellae

Apothecia stalked, cap- or saddle-shaped, or columnar

- I. Hymenium ridged in both directions
 - 1. Ridged cap stalked *Morchella* R. 1200, 8: 8
 - 2. Ridged cap sessile *Underwoodia* 10: 1
- II. Hymenium smooth, convolute or ridged longitudinally
 - 1. Hymenium saddle-like, more or less lobed *Helvella* R. 1179, 8: 17
 - 2. Hymenium globoid, convolute *Gyromitra* R. 1189, 8: 15
 - 3. Hymenium cap- or bell-shaped, smooth or ridged *Verpa* R. 1195, 8: 29

Subfamily Geoglossae

Apothecia stalked, clavate or capitate

- I. Hymenium distinct from stem, disciform or capitate
 - 1. Spores 1-celled **Haplocybe* R. 1168
(incl. *Moellerodiscus* 18: 8)
 - 2. Spores 2-4-celled
 - a. Apothecia gelatinous *Leotia* R. 1164, 8: 609
 - b. Apothecia waxy or fleshy-waxy *Cudoniella* R. 1166, 8: 41
 - 3. Spores filiform or acicular
 - a. Apothecia fleshy, cap-shaped with involute margin *Cudonia* R. 1169, 8: 527
(*Leotiella* 16: 700)
 - b. Apothecia waxy, button-shaped, solid *Vibrissea* R. 1170, 8: 51
- II. Hymenium club-shaped, not distinct from stem or but slightly so
 - 1. Spores hyaline
 - a. Spores 1-celled
 - (1) Spores globose *Neolecta* 8: 40
 - (2) Spores elliptic *Mitrula* R. 1146, 8: 32
(*Spragueola* 14: 742)
 - b. Spores 2-4-celled, fusoid
 - (1) Hymenium covering the whole club *Microglossum* R. 1151, 8: 39
 - (2) Hymenium on one side only *Hemiglossum* 10: 2
 - c. Spores more or less filiform *Spathularia* R. 1158, 8: 48
(incl. *Mitruliopsis* 18: 10)
 - 2. Spores brown, clavate or cylindric, many-celled *Geoglossum* R. 1153, 8: 42

Family 48. ASCOBOLACEAE

REHM 1078

Apothecia superficial, typically fimicole, scutellate to disciform, fleshy or waxy or gelatinous; asci mostly broad and clavate, projecting above the hymenium at maturity.

Subfamily Ascophanae

Spores colorless

I. Hymenium within an exciple**1. Asci 4- or 8-spored****a. Spores globose**

(1) Asci 4-spored

Boudierella 14: 792

(2) Asci 8-spored

Cubonia 8: 527**b. Spores elliptic to fusoid; asci 8-spored**

(1) Apothecia smooth

Ascophanus R. 1085, 8: 528

(2) Apothecia hairy or setose

(a) Spores smooth

Lasiobolus R. 1096, 8: 536

(b) Spores spiny

Aphanascus 10: 35**2. Asci 16-many-spored****a. Asci many**

(1) Apothecia fimbriate with delicate hairs; asci 32-spored

Streptotheca 10: 34

(2) Apothecia not hairy; asci 16-many-spored

Rhyarobius R. 1099**b. Ascus one****Thelebolus R. 1106****II. Hymenium without an exciple; asci many-spored****Zukalina R. 1108****Subfamily Ascobolae**

Spores colored

I. Spores globose**Boudiera R. 1113, 8: 512****II. Spores elliptic to fusoid****1. Spores in a gelatinous mass in ascus****Saccobolus R. 1115, 8: 524****2. Spores free in the ascus****a. Apothecia smooth**

(1) Exciple present, normal

Ascobolus R. 1120, 8: 514

(2) Exciple lacking

Ascodesmis 8: 824**b. Apothecia hairy or ciliate****Dasybolus 11: 421****Family 49. CORDIERITACEAE**

8: 810, 16: 803

Apothecia suberose or corneo-carbonous, superficial, ramose-stipitate, arising at the tips of the branches, finally cup-like and open; asci terete-clavate, 6-8-spored; spores 1- or 2-celled, mostly hyaline.

I. Spores 1-celled, hyaline; stipe much branched above, horny-carbonous**Cordierites 8: 810**

II. Spores 2-celled; stipe fascicled-ramose, suberose

Acroscyphus 8:811

Order 11. GYMNASCALES

Apothecia imperfect, more or less effuse or obsolete, maculiform, byssoid or dot-like, exiple absent; asci mostly free, often single, 1-many-spored, rarely with paraphyses.

Family 50. EXASCACEAE

8:811, 10:67, 11:435, 14:823, 16:803, 18:196

Asci parallel and crowded, sessile or enlarged at base; parasitic in living plants and deforming the part attacked as a rule.

I. Asci few-spored, usually 8-spored

- | | |
|--|-----------------------|
| 1. Spores 1-celled, more or less globose | <i>Exascus</i> 8:816 |
| 2. Spores 2-3-septate, oblong | <i>Elsinoe</i> 16:804 |

II. Asci many-spored

- | | |
|------------------------------|--------------------------|
| 1. Asci more or less globose | <i>Taphridium</i> 18:203 |
| 2. Asci terete-clavate | <i>Taphrina</i> 8:812 |

Family 51. GYMNASCACEAE

8:820, 10:70, 11:437, 14:824, 16:805, 18:194

(incl. Ascoidaceae, Ascocortiaceae, Endomycetaceae, Protomycetaceae)

Asci more or less solitary or grouped in masses of mycelium; for the most part saprophytic.

I. Saprogenous

- | | |
|---|-----------------------------------|
| 1. Asci 1-2-spored | <i>Bargellinia</i> 8:823 |
| 2. Asci 3-8-spored | |
| a. Spores globose or nearly so | |
| (1) Spores brown or violet | <i>Amaurascus</i> 11:438 |
| (2) Spores hyaline or golden | |
| (a) Asci 3-5-spored | <i>Conidiascus</i> 16:807 |
| (b) Asci 8-spored | |
| x. Asci surrounded by serrate spiral hyphae | <i>Ctenomyces</i> 8:824 |
| y. Asci without serrate spiral hyphae | |
| (x) Asci solitary | |
| m. Asci acrogenous | <i>Eremascus</i> 8:822 |
| n. Asci intercalary | <i>Oleina</i> 8:822 |
| (y) Asci grouped or congested in masses | <i>Gymnascus</i> 8:823 |
| | (incl. <i>Arachniotus</i> 11:438) |
| b. Spores elliptic, hyaline; asci vertical, clavate | <i>Ascocorticium</i> 10:71 |
| 3. Asci many-spored | |
| a. Spores globose | |
| (1) Asci elongate, split at base | <i>Dipodascus</i> 11:439 |
| (2) Asci terete-clavate, simple at base | <i>Ascoidea</i> 10:71 |

b. Spores elliptic

†*Ascodes* 16:807
(*Oscarbrefeldia*)

II. Biogenous

1. Asci 4-8-spored

a. Asci 4-spored, solitary; on fungi

Endomyces 8:821

b. Asci 8-spored

(1) Spores 1-celled

(a) Hyphae of palmiform haustoria; on fungi

Podocapsa 8:820

(b) Hyphae filamentous; on animals

Eidamella 16:805

(2) Spores muriform; on leaves

Nostocotheca 16:806

2. Asci many-spored

a. Mycelium present

Eremothecium 8:821

b. Mycelium none

(1) Haustoria present; on fungi

**Podocapsium* 8:820

(2) Haustoria absent; mostly on flowering plants

Protomyces 7:319

Family 52. SACCHAROMYCETACEAE

8:916, 11:457, 14:828, 16:818, 18:198

True hyphae lacking, unicellular, propagating by buds; asci spurious?, globose to elliptic, mostly 1-4-spored; growing typically in sugary or starchy liquids or materials.

I. Cells increasing by fission

Schizosaccharomyces 18:201

II. Cells increasing by budding

1. Spores pileiform or limoniform, costate

Willia 18:198

2. Spores globose to irregular

a. Vegetative cells conjugating

Zygosaccharomyces 18:198

b. Vegetative cells normal

Saccharomyces 18:198

Order 12. TUBERALES

Ascoma or apothecium typically more or less globose, and indehiscent, with one to many hollows, locules or veins, fleshy, waxy, leathery or even subcarbonous, saprophytic or parasitic, usually subterranean; asci present, 1-many-spored.

Family 53. CYTTARIACEAE

8:4, 16:695, 18:1

Ascomata globose or obovate, firm fleshy, subcorneous when dry, stuffed or hollow, loculiferous at the periphery, producing tubercular swellings on the branches of living trees; locules globose, large, dehiscing by lobes, filled with asci and paraphyses; asci cylindric 8-spored; spores hyaline.

I. Ascoma globose or obovate; all locules bearing asci

Cyttaria 8:4

- II. Ascoma turbinate, fenestrate below; asci on a definite disk
Rickiella 18:1

Family 54. PHYMATOSPHAERiaceae
 (incl. MYRIANGIACEAE)

8:843, 11:440, 16:799, 18:191

Ascomata verruciform, small, waxy, membranous or subcarbonous, superficial, densely loculiferous within; locules with a single ascus, indehiscent; asci globose or short clavate, 8-spored.

Hyalosporae

Spores hyaline, 1-celled, ovoid to elliptic

- I. Ascomata globose-depressed, membranous *Phillipsiella* 8:844

Phaeosporae

Spores dark, 1-celled, elliptic to fusoid

- I. Spores angulose, verrucose; fimicole *Guillermundia* 18:191

Hyalodidymae

Spores hyaline, 1-septate, elliptic to fusoid

- I. Ascomata dark, globose-depressed *Microphyma* 8:844
 II. Ascomata bright-colored, applanate *Leptophyma* 8:844

Hyalophragmiae

Spores hyaline, 2-several-septate, oblong to fusoid

- I. Ascomata elongate, rugose *Eurytheca* 8:846
 II. Ascomata punctiform to obconic
 1. Ascomata punctiform or applanate
 a. Ascomata punctiform; asci clavate *Harknessiella* 8:845
 b. Ascomata applanate-disciform; asci ovoid to globose
 Myriangium 16:800
 (incl. *Myriangella* 18:192)
 2. Ascomata hemispheric or obconic; asci globose
 Molleriella 8:845

Phaeophragmiae

Spores dark, 2-several-septate, oblong to fusoid

- I. Ascomata blood-red, membranous-waxy *Kusanoa* 16:800

Hyalodictyae

Spores hyaline, muriform

- I. Ascomata bright-colored
 1. Ascomata on a radiate subicle *Phymatosphaeria* 8:847
 2. Ascomata not on a subicle *Ascomycetella* 8:846
 II. Ascomata dark or black *Trichophyma* 18:194

Phaeodictyae

Spores dark, muriform

- I. Ascomata appanate-tuberculiform, black
- Cookella 8:846**

Family 55. ONYGENACEAE

8:861, 10:80, 11:440, 16:807

Ascomata subglobose, sessile or stipitate, membranous, fragile, epizoic; gleba waxy, then pulverulent; asci 8-spored, globose, evanescent; spores continuous, sub-hyaline.

A single genus

Onygena 8:861**Family 56. ELAPHOMYCETACEAE**(incl. **CENOCOCCACEAE**)

8:863, 10:80, 11:441

Ascomata hypogaeal, woody, crustose or carbonous, more or less globose, indehiscent, finally producing a powdery spore mass or gleba; asci 1-8-spored, sometimes spurious.

- I. Gleba interwoven with silky threads; asci normal

Elaphomyces 8:863

- II. Gleba without capillitium; asci spurious, cell-shaped

Cenococcum 8:871**Family 57. TUBERACEAE**(incl. **ENDOGENACEAE, EOTERFEZIACEAE**)

8:872, 10:80, 11:442, 14:826, 16:808, 18:205

Ascomata hypogaeal, rarely epigaeal or parasitic, fleshy or waxy hardened, more or less globose, indehiscent; gleba never becoming a powdery mass, typically veined or lacunose, rarely continuous; asci 1-8-spored, rarely spurious.

Hyalosporae

Spores hyaline, 1-celled, globose to elliptic

- I. Gleba without veins, but with one or more cavities

1. Asci linear or elongate

- a. Spores verrucose or roughened

- (1) Spores globose

Pseudogenea 16:808

- (2) Spores ovoid to elliptic

Genea 8:873

- b. Spores smooth

- (1) Gleba with a single large cavity

Hydnocystis 8:876

- (2) Gleba convolute lacunose

- (a) Densely lanate; canals not produced to surface

Geopora 8:877

- (b) Not lanate; canals produced to surface

Pseudohydnotria 16:808

2. Asci globose to oblong

- a. Spores roughened or alveolate, globose

- (1) Asci 2-4-spored; spores with recurved spines
Terfeziopsis 16:816
- (2) Asci 8-spored
- x. Hollows or canals not reaching the surface
- (x) Gleba with irregular stellate hollows
Myrmecocystis 16:809
- (y) Microscopic; gleba central, lax
Lilliputia 16:816
- y. Hollows or canals reaching the surface
Hydnobolites 8:879
- b. Spores smooth
- (1) Gleba of numerous locules; epigaeal, parasitic on fungi
Eoterfezia 18:205
- (2) Hypogaeal
- (a) Ascoma brown villous
Phaeangium 11:442
- (b) Ascoma not villous
Balsamia 8:877
- II. Gleba with veins, solid or also lacunose
1. Veins of two colors; spores globose, smooth
Stephensia 8:880
2. Veins all of one color
- a. Spores globose, roughened
- (1) Gleba with distinct veins; asci mostly 2-3-spored
Delastria 8:904
- (2) Gleba marbled with brown spots; asci 3-4-spored
Piersonia 16:812
- b. Spores ellipsoid, smooth
- (1) Spores apiculate at each end, limoniform
Leucangium 8:899
- (2) Spores not apiculate
- (a) Asci 8-spored, broadly stipitate
Tirmania 11:444
- (b) Asci 6-8-spored, not stipitate
Picoa 8:899
- Phaeosporae**
- Spores dark, 1-celled
- I. Gleba without veins; typically with hollows or canals
1. Spores globose, roughened
- a. Asci linear or cylindric
- (1) Gleba with one or more hollows
Gyrocratera 16:815
(incl. **Cryptica 10:82**)
- (2) Gleba homogeneous, lax
Ruhlandiella 17:241
- b. Asci broad, oblong
Hydnotrya 8:879
2. Spores ovoid, smooth
Genabea 8:878
- II. Gleba with veins
1. Veins of two colors
- a. Some veins white
Pachyphloeus 8:881
- b. No veins white
Tuber 8:882
2. Veins of one color

- a. Asci elongate; gleba not divided into masses

Choeromyces 8:900

- b. Asci ovate to globose; gleba divided into masses

Terfezia 8:902

Order 13. UREDINALES

Apothecia reduced to a mass of persistent or evanescent asci, waxy, leathery, gelatinous or powdery; parasites.

Family 58. UREDINACEAE

7:528, 9:291, 11:174, 14:269, 16:257, 17:244

Parasitic; apothecia reduced to a mass of asci with fixed spore cells, i. e., teleutospores with 1 or more cells; conidia normally present, produced in cluster cups (aecidia, aecia), sori (uredinia), or spermagonia (pycnia); the asci and conidia may occur on the same host or upon different hosts, or one or the other alone may occur; teleutospores producing a promycelium and sporidioles upon germination.

Amerosporae

Teleutospores 1-celled, colored, rarely hyaline, or absent

I. Teleutospores present

1. Teleutospores hyaline

- a. Teleutospores catenate

Monosporidium 9:297

- b. Teleutospores single

Zaghouania 17:268

2. Teleutospores colored

- a. Spore mass or sorus horizontal

(1) Teleutospores catenate

- (a) Spores in a pseudoperidium

Dietelia 14:291

- (b) Spores not in a pseudoperidium

Clastospora 17:263

(2) Teleutospores not catenate

- (a) Uredospores not in a pseudoperidium

- x. Spores half smooth, half roughened

Hemileia 7:585

- y. Spore cells alike smooth or rough

- (x) Teleutospores on a stalk

Uromyces 7:531

- (y) Teleutospores not stalked

- m. Teleutospores connate in a lentiform layer

†Uromyces 14:290

(Schroeteriaster)

- n. Teleutospores not connate

Chaonia 14:290

- (b) Uredospores in a pseudoperidium

- x. Teleutospore sorus determinate, black or dark-brown

Melampsora 7:586

(incl. Phaeopsora 14:289)

- y. Teleutospore sorus indeterminate, pale or reddish

Melampsorella 7:596

(incl. Hyalopsora 17:268)

- b. Spore mass or sorus with a cylindric columella, more or less vertical, globose to cylindric

- (1) Teleutospores mucose; uredospores lacking
Masseella 14: 292
- (2) Teleutospores not mucose; uredospores present
 - (a) Uredospores in a pseudoperidium
Cronartium 7: 597
 - (b) Uredospores not in a pseudoperidium
Skierka 16: 271
- II. Teleutospores absent; pycnia, aecia or uredinia only
 - I. Spores in a pseudoperidium or cup
 - a. Spores in pycnia
Aecidiolum 7: 773
 - b. Spores in aecia
 - (1) Aecia cup-shaped, usually dentate or crenate at margin
Aecidium 7: 774
 - (2) Aecia cylindric, margin fimbriate
Roestelia 7: 833
 - (3) Aecia irregular, more or less globose
 - (a) Spores catenate; on conifers
Peridermium 7: 835
 - (b) Spores free; not on conifers
Pericladium 7: 838
 - 2. Spores not in a pseudoperidium; uredinia
 - a. Spores single
Uredo 7: 838
 - b. Spores catenate
Caeoma 7: 863

Didymosporae

Teleutospores 2-celled, colored or hyaline

- I. Teleutospores absent; aecia alone present
Aecidiella 14: 389
- II. Teleutospores present
 - I. Sori horizontal
 - a. Teleutospores catenate, in a pseudoperidium
†Didymosira 11: 205
(Puccinosira)
 - b. Teleutospores single
 - (1) Teleutospores not in a pseudoperidium
 - (a) Teleutospores subpenicillate at each end
Dasyspora 9: 313
 - (b) Teleutospores not penicillate
 - x. Pedicel of spore with a hyaline gelatinous sheath
†Coleoma 9: 313
(Coleopuccinia)
 - y. Pedicel without gelatinous sheath
 - (x) Teleutospores longitudinally 1-septate
Diorchidium 7: 736
 - (y) Teleutospores transversely 1-septate
 - m. Teleutospores with a hyaline integument
Uropyxis 7: 735
 - n. Teleutospores without hyaline integument

(m) Spore cells with germination pores

Puccinia 7: 600

(inc. **Trichopsora**, **Chrysopsora**

11: 206, **Gymnoconia** 14: 360)

(n) Spore cells without germination pores

Leptinia 14: 358

(2) Teleutospores in a pseudoperidium

Schizospora 14: 361

2. Sori vertical

a. Teleutospores confluent into a gelatinous stratum

Gymnosporangium 7: 737

b. Teleutospores closely joined in a columella

(1) Spores catenate

Gambleola 16: 314

(2) Spores not catenate

Didymopsora 16: 315

Phragmosporae

Teleutospores 2-several-septate

I. Teleutospores not in a pseudoperidium

1. Teleutospores transversely septate

a. Teleutospores catenate

†**Phragmostele** 16: 321

b. Teleutospores not catenate

(**Pucciniostele**)

(1) Uredospores not catenate

(a) Teleutospores cylindric; cells separating with difficulty

Phragmidium 7: 742

(incl. **Phragmopyxis** 14: 361, **Rostrupia**, **Barclayella** 9: 316)

(b) Teleutospores moniliform; cells separating easily

Xenodochus 7: 750

(2) Uredospores catenate, at least at first

(a) Wall of teleutospore thick; promycelium simple with a single sporidole at apex

Coleosporium 7: 751

(incl. **Stichopsora** 16: 318)

(b) Wall of teleutospore thin; promycelium 3-septate, with a sporidole at each cell

Chrysomyxa 7: 759

2. Teleutospores longitudinally or obliquely septate

a. Teleutospores developed within the host cells

(1) Uredospores in a pseudoperidium; homoeocious

Thecopsora 7: 764

(2) Uredospores lacking; heteroecious

Calyptospora 7: 766

b. Teleutospores developed outside the host cells

Pucciniastrum 7: 762

II. Teleutospores in a pseudoperidium

1. Teleutospores catenate, verrucose

Endophyllum 7: 767

2. Teleutospores not catenate, echinulate

Milesia 7: 768

(incl. **Uredinopsis** 17: 269)

Dictyosporae

Teleutospores septate in two directions, or muriform

I. Teleutospores more or less radiately 3-septate

Triphragmium 7: 768

(incl. **Hapalophragmium** 16: 1121)

II. Teleutospores radiately 4-many-septate or muriform

Ravenelia 7: 770

(incl. **Sphaerophragmium** 11: 209,
Alveolaria 11: 212, **Hemileiopsis** 16: 269, **Anthomyces** 16: 325,
Pleoravenelia and **Neoravenelia**, 17: 407)

Family 59. USTILAGINACEAE

7: 449, 9: 282, 11: 230, 14: 410, 16: 367, 17: 472

Mycelium growing widely through parts of living plants, chiefly flowers and fruits, finally disappearing, leaving the mass of spores; spores producing upon germination a promycelium upon which sporidioles are borne.

Amerosporae

Spores 1-celled

I. Sori without a fungal involucre

1. Sporidioles typically pleurogenous on the promycelium

a. Spores arising from a compact subgelatinous stroma

Cintractia 7: 480

b. Spores not arising from a compact subgelatinous stroma

Ustilago 7: 451

(incl. **Anthracoidea** 14: 420)

2. Sporidioles many, acrogenous, crowning the promycelium

a. Sori powdery at maturity

(1) Sporidioles many, in a capitulum

Neovossia 16: 375

(2) Sporidioles not in a capitulum

Tilletia 7: 481

b. Sori not powdery at maturity

(1) Spores catenate, then separating

Sirentyloma 14: 425

(2) Spores not catenate

(a) Spores rostrate

Rhamphospora 9: 287

(b) Spores not rostrate

x. In stems and leaves

(x) Sori pustulate, pale or rust-brown

Entyloma 7: 487

(y) Sori explanate, widely expanded, black

Melanotaenium 7: 496

y. In roots

(x) Spores conglobate in spheroid cysts

Oedomycetes 11: 234

(y) Spores not conglobate

Entorrhiza 7: 497

z. In ovaries

†*Ustilaginula* 7: 498
(*Ustilagopsis*)

II. Sori with a fungal involucre

1. Spores in a powdery mass
2. Spores in a hard black crust

Sphacelotheca 7: 499
Melanopsichium 17: 484

Didymosporae

Spores united by twos or 2-celled

I. Spore-bearing hyphae tubular, enclosed in a stroma

Mycosyrinx 17: 484

II. Spore-bearing hyphae not in a stroma

1. Spores joined laterally by a narrow isthmus; sporidioles pleurogenous
Schizonella 7: 500
2. Spores joined horizontally and broadly; sporidioles acrogenous
Schroeteria 7: 500

Dictyosporae

Spores closely joined in masses, the latter appearing to be many-celled spores

I. Spores or cells of each mass alike

1. Sporidioles pleurogenous or acrogenous; usually not foliicole

a. Promycelium simple

Tolyposporium 7: 501

b. Promycelium branched

Tolyposporella 14: 427

2. Sporidioles acrogenous, typically foliicole

a. Sporidioles numerous

- (1) Spore masses covered by a layer of sterile cells

Doassansia 7: 502

(incl. *Cornuella*, *Burrillia* 11: 236)

- (2) Spore masses without a sterile layer

Tuburcinia 7: 507

- b. Sporidioles solitary; sori reddish, usually fructicole

Thecophora 7: 507

3. Sporidioles unknown; sori mostly very black

Sorosporium 7: 511

(incl. *Poecilosporium* 16: 380)

II. Spores or cells of two kinds in each mass, central few large, peripheral many, small

1. Sori of many sacks containing spore masses

Polysaccopsis 16: 381

2. Sori without sacks

Urocystis 7: 515

Class 5. BASIDIOMYCETES

Spores produced on basidia, not inclosed in asci.

Order 14. AGARICALES (HYMENOMYCETES)

Basidia exposed on an even or modified hymenium, the latter usually in the form of gills, pores or teeth.

Family 60. TREMELLACEAE

6: 760, 9: 257, 11: 142, 14: 244, 16: 215, 17: 203

Pileus typically gelatinous and homogeneous, horny when dry, reviving when wet, sometimes waxy or leathery but then with divided basidia; hymenium typically amphigenous or superior, smooth or somewhat convolute; basidia globose to terete, transversely or longitudinally divided, or in one subfamily merely terete-clavate and furcate, 1-4-sterigmate; spores globose to reniform and oblong, continuous or septate, producing sporidioles on germination; conidia often present with the spores. Some gelatinous forms included in the following families on account of the character of the hymenium seem to belong properly in this family.

Subfamily Auriculariae

Basidia transversely septate, elongate or fusoid

I. Pileus, or at least the hymenium, gelatinous**1. Entire pileus gelatinous****a. Pileus verruciform or effuse**(1) Basidia mixed with paraphyses **Mytilloporia 14: 246****(2) Basidia without paraphyses**

(a) Spores not producing sporidioles on germination

Platygloria 6: 771

(b) Spores producing sporidioles

Helicoglossa 11: 145**b. Pileus disciform, cupulate or columnar**(1) Pileus erect, filiform, columnar **Eucronartium 17: 211****(2) Pileus not columnar, disciform or cupulate**(a) Basidia without sterigmata **Auriculariella 6: 407****(b) Basidia with sterigmata****x. Basidia 2-sterigmate; pileus applanate****Phlebophora 16: 215****y. Basidia 3-4-sterigmate; pileus pezizoid****†Collopezis 16: 216****(Tjibodasia)****2. Pileus coriaceous or membranous, hymenium gelatinous****a. Pileus coriaceous; hymenium reticulate-costate****Auricularia 6: 762****b. Pileus membranous; hymenium smooth or plicate****Hirneola 6: 764****II. Pileus waxy, crust-like or byssoid****1. Pileus waxy or crust-like****a. Pileus very minute, disciform, on a pedicel****Pilacrella 14: 246****b. Pileus membranous, incrusting****Jola 14: 245****2. Pileus byssoid****a. Basidia without a sack near the base** **Stypinella 14: 244****b. Basidia with a sack near the base** **Saccoblastia 14: 244****Subfamily Tremellae**

Basidia longitudinally 4-divided, or cruciate, globose or ovoid

I. Spores alone present, i. e., homosporous

1. Pileus waxy or byssoid
 - a. Pileus waxy, scarcely gelatinous
 - (1) Pileus effuse **Protomerulius 11: 142**
 - (2) Pileus cupulate or concave **Hirneolina 17: 208**
 - b. Pileus byssoid **Stypella 14: 246**
 2. Pileus gelatinous
 - a. Pileus covered with sterile setae, effuse **Heterochaete 14: 247**
 - b. Pileus without sterile setae
 - (1) Pileus erect, clavate, columnar or spatulate
 - (a) Pileus clavate, simple or branched **Clavariopsis 16: 219**
(incl. **Hyaloria 14: 252**)
 - (b) Pileus spatulate, large, simple **Gyrocephalus 6: 795**
 - (2) Pileus effuse, globose, cupulate or pulvinate
 - (a) Spores 1-celled
 - x. Pileus cupulate, radicate **Femsjonja 6: 779**
 - y. Pileus pulvinate or effuse
 - (y) Basidia in chains; hymenium not cerebriform **Sirobasidium 14: 248**
 - (y) Basidia not in chains; hymenium cerebriform **Tremella 6: 780**
(inc. **Naematelia 6: 792**)
 - (b) Spores 2-4-celled, at least upon germination, reniform
 - x. Spores 2-4-celled, sporidioles allantoid; pileus truncate-cupulate or effuse **Exidia 6: 772**
 - y. Spores 2-celled, sporidioles straight; pileus pulvinate, gyrose **Ulocolla 6: 777**
 - II. Spores and conidia present, i. e., heterosporous
 1. Pileus ascending and dendroid **†Collodendrum 17: 208**
(**Tremellodendron**)
 2. Pileus effuse to pulvinate
 - a. Spores on the disk, conidia on the exciple **Craterocolla 6: 778**
 - b. Conidia and spores usually succeeding each other on the same area
 - (1) Pileus cerebriform, pulvinate or effuse **Tremella 6: 780**
 - (2) Pileus not cerebriform, crust-like
 - (a) Spores reniform, conidia ovoid **Sebacina 6: 540**
 - (b) Spores ovoid, conidia hamate **Exidiopsis 14: 248**
- Subfamily Dacryomycetae**
- Basidia terete-clavate, furcate above
- I. Pileus effuse, pulvinate or globose, typically sessile
 1. Spores septate, at least upon germination
 - a. Pileus gyrose; spores not horseshoe-shaped **Dacryomyces 6: 796**
 - b. Pileus tuberculiform; spores horseshoe-shaped **Delortia 6: 795**

2. Spores not septate
 - a. Spores hyaline; pileus more or less effuse, waxy
Arrhytidia 6: 804
 (incl. *Ceracea* 6: 805)
 - b. Spores colored; pileus subglobose
Seismosarca 9: 260
- II. Pileus cupulate, clavate or foliose, typically stalked
 1. Pileus irregularly cup-shaped, usually stipitate
 - a. Pileus gelatinous or cartilaginous, cupulate
Guepinia 6: 805
 - b. Pileus leathery, hymenium gelatinous, cupulate-disciform
Ditiola 6: 813
†Tremellastrum 17: 193
 (Tremellopsis)
 2. Pileus erect, foliose-lobed
 3. Pileus capitate to lanceolate, stipitate
 - a. Pileus capitate, head inflated, corrugate; stipe hollow
 - (1) Homosporous
Collyria 6: 811
 - (2) Heterosporous
Dacryopsis 11: 149
 - b. Pileus clavate, club plicate
Dacryomitra 6: 811
 - c. Pileus lanceolate, hanging
Myxomycidium 16: 220

Family 61. CLAVARIACEAE

6: 690, 9: 247, 11: 134, 14: 235, 16: 203, 18: 193

Hymenium not discrete from the hymenophore, amphigenous; pileus more or less clavate or coralloid, subcarnose or leathery, simple or branched.

- I. Pileus with many crowded, leaf-like branches
Sparassis 6: 690
- II. Branches not leaf-like
 1. Pileus fleshy
 - a. Branches fibrous-splitting
Acurtis 6: 691
 - b. Branches not splitting
Clavaria 6: 692
 (incl. *Phaeoclavulina* 14: 238)
 2. Pileus leathery, rarely subgelatinous
 - a. Pileus somewhat gelatinous
 - (1) Pileus capitate; cap hollow, inflated
Baumannella 14: 244
 - (2) Pileus clavate or coralloid
Calocera 6: 732
 - b. Pileus leathery
 - (1) Pileus tomentose
Lachnocladium 6: 738
 - (2) Pileus not tomentose
 - (a) Pileus terete or compressed, dry, cartilaginous
Pterula 6: 740
 (incl. *Phaeopterula* 17: 201)
 - (b) Pileus simple, filiform or capitate
 - x. Pileus capitate, inflated
Hirsutella 11: 140
 - y. Pileus more or less filiform
Physalacria 6: 759

- (x) Pileus clavulate with filiform stipe
Typhula 6: 743
- (y) Pileus linear or subclavate; stipe short or none
Pistillaria 6: 752

Family 62. THELEPHORACEAE

6: 513, 9: 218, 11: 115, 14: 212, 16: 181, 18: 160

Hymenium inferior or amphigenous, leathery, waxy or membranous, smooth, i. e., without spines, pores, etc., sometimes somewhat ridged, or cracked; spores various.

I. Not parasitic on algae

1. Pileus more or less gelatinous

a. Pileus effuse

(1) Spores hyaline

Cerocorticium 16: 196

(2) Spores olivaceous

Aldridgea 11: 129

b. Pileus convex to discoid

Discocyphella 16: 202

2. Pileus not gelatinous

a. Hymenium somewhat ridged or roughened

(1) Hymenium subcarnose, infundibuliform, costate

Craterellus 6: 514

(2) Hymenium leathery

(a) Hymenium woody, with radiating ridges, warty-roughened

Cladoderris 6: 547

(b) Hymenium similar, but with fan-like ridges

Beccariella 6: 550

b. Hymenium smooth, or absent

(1) Hymenium present, smooth

(a) Hymenium without cystidia

x. Pileus urn-shaped, stipitate

Hypolyssus 6: 521

y. Pileus typically crateriform to dimidiate

(x) Pileus with distinct intermediate stratum

Stereum 6: 551

(y) Pileus homogeneous or nearly so

m. Pileus vertical, beautifully convolute, mitriform

Skepperia 6: 603

n. Pileus not convolute

(m) Basidia not transeptate

Thelephora 6: 521

(incl. *Friesula* 6: 685)

(n) Basidia transeptate

Septobasidium 11: 118

z. Pileus resupinate, effuse, rarely cupulate

(x) Pileus not cupulate

m. Hymenium waxy

(m) Spores large, citriform

Michenera 6: 652

(n) Spores medium, not citriform

Corticium 6: 603

(incl. *Kneiffia* 6: 510)

n. Hymenium fleshy, spores minute, colored

- (m) Spores smooth **Coniophora 6: 647**
- (n) Spores angular or aculeate **Prillieuxia 14: 225**
- (y) Pileus cupulate or cylindric
 - m. Pileus cupulate **Cyphella 6: 667**
 - n. Pileus terete to cylindric **Solenia 6: 424**
- (b) Hymenium with cystidia
 - x. Cystidia simple
 - (x) Cystidia hyaline **Peniophora 6: 640**
(incl. *Coniophorella* 17: 183)
 - (y) Cystidia colored **Hymenochaete 6: 588**
(incl. *Lloydia* 16: 1116)
 - * y. Cystidia septate **Bonia 11: 123**
- (2) Hymenium absent, or more or less cobwebby
 - (a) Biogenous
 - x. Hymenium endophytic **Endobasidium 17: 190**
 - y. Hymenium erumpent
 - (x) Basidia circinate **Helicobasidium 6: 666**
 - (y) Basidia not circinate
 - m. Spores globose; on galls **Urobasidium 11: 131**
 - n. Spores cylindric; on roots ***Chrysobasidium 11: 131**
(*Aureobasidium*)
 - o. Spores oblong; on leaves **Exobasidium 6: 664**
 - (b) Saprogenous
 - x. Spores septate, fuscous **Heterobasidium 9: 237**
 - y. Spores 1-celled, hyaline
 - (x) Brown stellate hyphae present **Asterostroma 9: 236**
 - (y) Brown stellate hyphae absent
 - m. Basidia 4-spored **Hypochnus 6: 653**
 - n. Basidia 2-spored **Matruchotia 11: 118**

(Cfr. *Tulasnellaceae* 14: 234)

II. Parasitic on algae

- 1. Algae *Chroococcus* **Cora 6: 685**
- 2. Algae *Scytonema* **Rhipidonema 6: 687**

(Zahlbruckner 237)

Family 63. HYDNACEAE

6: 429, 9: 208, 11: 106, 14: 201, 16: 174, 18: 147

Pileus cap-shaped to resupinate, fleshy, gelatinous, woody or leathery; hymenium consisting of spines, teeth, or granules, rarely somewhat pore-like; spores various.

I. Pileus more or less gelatinous

- 1. Gelatinous, stalked or dimidiate; with teeth **Tremellodon 6: 479**
- 2. Waxy-gelatinous, resupinate, with granules **Grandiniella 14: 208**

II. Pileus fleshy, woody or leathery

- 1. Hymenium of more or less subulate teeth or spines

- a. Pileus present
 - (1) Perennial; woody †Hydnophysa 16: 177
(Hydnofomes)
 - (2) Not perennial
 - (a) Pileus clavaria-like Hericium 6: 478
 - (b) Pileus not clavaria-like
 - x. Teeth free; mostly carnose
 - (x) Pileus typically stalked Hydnum 6: 430
(incl. Echinodontium 16: 176)
 - (y) Pileus horizontal Sistotrema 6: 480
 - y. Teeth connected at base; coriaceous
 - (x) Cystidia lacking Irpex 6: 482
 - (y) Cystidia present
 - m. Cystidia subulate Asterodon 11: 111
 - n. Cystidia stellate Hydnochaete 14: 211
 - b. Pileus lacking
 - (1) Teeth on a membranous subicle Caldesiella 6: 477
 - (2) Teeth without a subicle Mucronella 6: 512
- 2. Hymenium of granules, warts or folds
 - a. Hymenium of granules or warts
 - (1) Hymenium with penicillate-multifid warts
 - Odontia 6: 506
 - (2) Hymenium with simple granules or warts
 - (a) Hymenium porose-reticulate, granular
 - Grammothele 6: 505
 - (b) Hymenium with difform, obtuse cylindric warts
 - Radulum 6: 493
(incl. Phaeoradulum 16: 179)
 - (c) Hymenium with globose hollowed granules
 - Grandinia 6: 500
 - b. Hymenium with folds or laminae
 - (1) Hymenium with fold-like crests
 - (a) Crests with edge entire Phlebia 6: 497
 - (b) Crests with edge incised Lopharia 6: 500
 - (2) Hymenium with anastomosing radiate laminae
 - Thwaitesiella 11: 112

Family 64. POLYPORACEAE

6: 1, 9: 150, 11: 79, 14: 164, 16: 138, 17: 95

Pileus cap-shaped, shelf-like, or resupinate, very rarely volvate or annulate, fleshy, leathery or woody, rarely gelatinous; hymenium consisting of pores, very rarely somewhat lamellar; spores typically 1-celled, hyaline or colored.

I. Pileus fleshy, putrescent, or gelatinous

1. Pileus fleshy

a. Stipe volvate or annulate

(1) Stipe volvate

†Boletium 14: 164
(Volvoboletus)

- (2) Stipe annulate **Boletopsis 14: 164**
- b. Stipe not volvate or annulate
 - (1) Stipe central, tubes usually not discrete from each other
 - (a) Spores cylindric, minute **†Bactroboletus 16: 142**
(Filoboletus)
 - (b) Spores globose to fusoid
 - x. Pileus and stipe beautifully squarrose-scaly **Strobilomyces 6: 49**
 - y. Pileus and stipe not squarrose-scaly
 - (x) Layer of tubes separating readily from the hymenophore **Boletus 6: 2**
(incl. Suillus, Tylopilus 16: 142)
 - (y) Layer of tubes not separating readily from the hymenophore
 - m. Tubes not discrete from each other
 - (m) Tubes radiate; hymenophore mucronate **Boletinus 6: 51**
 - (n) Tubes sinuose or gyrose; hymenophore smooth **Gyrodon 6: 51**
 - n. Tubes discrete from each other **Fistulinella 17: 101**
 - (2) Stipe lateral; tubes discrete from each other **Fistulina 6: 54**
- 2. Pileus gelatinous
 - a. Stalked; spores brown
 - (1) Pileus single **Rodwaya 16: 172**
 - (2) Pileus many, superimposed on the stipe **Mycodendrum 9: 206**
 - b. Mostly sessile; spores hyaline **Laschia 6: 404**
- II. Pileus leathery, corky or woody, rarely tough-fleshy
 - 1. Tubes gelatinous **Gloeoporus 6: 403**
 - 2. Tubes not gelatinous
 - a. Hymenium covered by a volva-like membrane **Cryptoporus 17: 125**
 - b. Hymenium not volvate
 - (1) Tubes in several layers; perennial, woody **Fomes 6: 150**
 - (2) Tubes not stratified in layers
 - (a) Tubes typically pore-like
 - x. Tube layer distinct but not separable from the hymenophore; tough-fleshy to leathery
 - (x) Pileus thick, tough-fleshy, stalked or sessile **Polyporus 6: 55**
(incl. Laccocephalum 11: 87)
 - (y) Pileus thin, coriaceous or membranous
 - m. Pileus stipitate to dimidiate
 - (m) Tubes not spiny inside **Polystictis 6: 208**
 - (n) Tubes spiny inside **Mucronoporus 9: 188**
 - n. Pileus resupinate **Poria 6: 292**

- y. Tube layer not distinct from hymenophore; tubes often unequally sunken
 - (x) Pileus suberose; typically sessile to resupinate
 - m. Tubes subrotund **Trametes 6: 334**
(incl. *Sclerodepsis* 9: 194)
 - n. Tubes not round, or of two forms
 - (m) Tubes of two forms, one normal, the other loculiform, enclosed **Myriadoporus 6: 384**
 - (n) Tubes alike, superficial
 - r. Tubes hexagonal **Hexagonia 6: 356**
 - s. Tubes sinuose-labyrinthine, elongate **Daedalea 6: 370**
 - (y) Pileus leathery, membranous or waxy; sessile
 - m. Tubes immersed in discrete warts; resupinate **Porothelium 6: 421**
 - n. Tubes not immersed in warts
 - (m) Tubes with a papilla in the center **Theloporus 6: 421**
 - (n) Tubes reticulate-gyrose, not papillate **Merulius 6: 411**
(incl. *Poroptycha* 9: 206)
 - (b) Tubes lamella-like (see *Daedalea* also)
 - x. Tubes of many little laminae **Bresadolia 6: 388**
 - y. Tubes lamellose, in radiating series **Favulus 6: 390**
 - z. Tubes really concentric lamellae **Cyclomyces 6: 389**

Family 65. AGARICACEAE

Pileus typically cap-shaped and stalked, rarely sessile and the hymenium above, fleshy to corky; pileus sometimes enclosed in a cap veil which persists at the base of the stipe as a volva; hymenium consisting of radiating lamellae or gills, often protected by a gill veil which remains on the stipe as a ring; gills covered with basidia, bearing typically 4 sterigmata and spores; spores typically 1-celled, hyaline or colored.

Leucosporae

5:8, 9:1, 11:1, 14:63, 16:1, 18:1

Spores colorless, or very dilutely colored even in spore prints, globose to fusoid, smooth or rough

- I. Edge of the gills entire, not canaliculate or split
 - i. Fleshy, putrescent, not reviving when wet
 - a. Edge of the gills acute, not fold-like
 - (1) Trama of the pileus not vesiculose; spores typically smooth
 - (a) Gills more or less fleshy, readily separable into two layers
 - x. Stipe central or nearly so
 - (x) Hymenophore discrete from the fleshy stipe.
 - m. Stipe volvate

- (m) Stipe annulate **Amanita 5: 8**
- (n) Stipe not annulate **Amanitopsis 5: 20**
- n. Stipe not volvate
 - (m) Stipe annulate **Lepiota 5: 27**
 - (n) Stipe not annulate **Schulzeria 5: 72**
- (y) Hymenophore homogeneous and confluent with the fleshy or fibrous-elastic stipe
 - m. Stipe annulate, without a volva **Armillaria 5: 73**
 - n. Stipe not annulate or volvate
 - (m) Gills adnate or sinuate, not decurrent **Tricholoma 5: 87**
 - (n) Gills typically decurrent **Clitocybe 5: 141**
 - (z) Hymenophore confluent with the cartilaginous stipe but heterogeneous from it
 - m. Gills not decurrent
 - (m) Cap very thin, diaphanous **Hiatalula 5: 305**
 - (n) Cap not diaphanous
 - r. Margin of the young cap turned in **Collybia 5: 200**
 - s. Margin of the young cap straight **Mycena 5: 251**
(incl. *Eomycenella* 17: 21)
 - n. Gills decurrent; cap umbilicate **Omphalia 5: 308**
 - y. Stipe excentric or none **Pleurotus 5: 339**
 - (b) Gills waxy rather than fleshy, splitting with difficulty **Hygrophorus 5: 387**
 - (2) Trama of cap more or less vesiculose; spores globose, spiny
 - (a) Gills with milky, white or bright-colored sap **Lactarius 5: 423**
(incl. *Lactariopsis* 17: 30)
 - (b) Gills with clear sap, if any **Russula 5: 453**
 - b. Edge of gills obtuse or fold-like
 - (1) Gills decurrent, dichotomous, somewhat waxy **Cantharellus 5: 482**
 - (2) Gills not decurrent
 - (a) Gills somewhat broad, obtuse **Nyctalis 5: 499**
 - (b) Gills thin or obsolete
 - x. Gills thin
 - (x) Gills vein-like, fleshy **Arrhenia 5: 498**
(incl. *Campanella* 14: 100, *Rim-bachia* 11: 32)
 - (y) Gills of two sorts, gelatinous **Stylobates 5: 502**

- y. Gills obsolete **Cymatella 16: 49**
 - 2. Fleshy-leathery, leathery, corky or woody, persistent, reviving when wet
 - a. Fleshy-leathery or gelatinous-leathery
 - (1) Gills distinct
 - (a) Stipe discrete from the hymenophore
 - x. Cap fleshy and tough or thin and leathery
 - Marasmius 5: 503**
 - (incl. **Marasmiopsis 14: 101**)
 - Heliomyces 5: 569**
 - y. Cap gelatinous-leathery
 - (b) Stipe and hymenophore continuous
 - x. Edge of gills acute
 - (x) Edge serrate **Lentinus 5: 571**
 - (incl. **Lentodium 14: 121, Lento-**
 - diopsis 17: 47)**
 - (y) Edge entire **Panus 5: 614**
 - y. Edge of gills obtuse, gills dichotomous
 - Xerotus 5: 630**
 - (2) Gills fold-like, edges canaliculate or crisp
 - Trogia 5: 635**
 - b. Corky
 - (1) Gills distinct
 - (a) Gills tomentose **Tilotus 5: 652**
 - (b) Gills smooth **Lenzites 5: 637**
 - (2) Gills line-like, parallel, flexuous **Hymenogramme 5: 652**
- II. Edge of gill split or appendiculate
 - 1. Fleshy
 - a. Stipe central; edge of gills split **Oudemansiella 5: 653**
 - b. Stipe lateral; edge with appendages **Pterophyllus 5: 654**
 - 2. Membranous or coriaceous
 - a. Membranous; stipe central; gills split into flexuous fragments
 - Rhacophyllus 5: 654**
 - b. Coriaceous; stipe none or lateral; edge split and revolute
 - Schizophyllum 5: 654**

Rhodosporae

5: 656, 9: 82, 11: 43, 14: 124, 16: 69, 18: 52

Spores rosy, salmon-colored or rosy-rust-colored in spore prints, paler under the microscope

I. Stipe central

- 1. Hymenophore discrete from the stipe
 - a. Stipe volvate at base
 - (1) Stipe annulate also **Metraria 9: 82**
 - (2) Stipe not annulate **Volvaria 5: 656**
 - b. Stipe not volvate
 - (1) Stipe annulate **Annularia 5: 663**
 - (2) Stipe not annulate
 - (a) Fleshy; gills free **Pluteus 5: 665**

- (b) Tough; gills adnexed **Schinzinia 11: 44**
- 2. Hymenophore homogeneous and confluent with the stipe
 - a. Gills decurrent
 - (1) Stipe fleshy-fibrous **Clitopilus 5: 698**
 - (2) Stipe cartilaginous **Eccilia 5: 729**
 - b. Gills adnexed, sinuate or free
 - (1) Stipe fleshy-fibrous; gills sinuate **Entoloma 5: 679**
 - (2) Stipe cartilaginous; gills not sinuate
 - (a) Cap convex; margin at first inflexed **Leptonia 5: 706**
 - (b) Cap campanulate; margin straight from the first **Nolanea 5: 716**
- 3. Hymenophore continuous with the cartilaginous stipe, but different from it; volvate **Volvariella 16: 70**
- II. Stipe excentric or none; lignicole **Claudopus 5: 733**

Ochrospora

5: 735, 9: 90, 11: 48, 14: 131, 16: 83, 18: 62

Spores ochraceous or more or less rust-colored

- I. Gills not separating readily or naturally from hymenophore
 - I. Gill veil not cobwebby
 - a. Stipe central
 - (1) Stipe volvate or annulate
 - (a) Stipe volvate **Locellina 5: 761**
 - (b) Stipe annulate **Pholidota 5: 736**
(incl. *Pholiotella* 9: 90)
 - (2) Stipe not volvate or annulate
 - (a) Gills not deliquescing
 - x. Stipe fleshy
 - (x) Gills adnate or decurrent **Flammula 5: 809**
 - (y) Gills mostly sinuate
 - m. Cap fibrillose, silky or scaly **Inocybe 5: 762**
 - n. Cap smooth, more or less viscid **Hebeloma 5: 791**
 - y. Stipe cartilaginous
 - (x) Gills decurrent **Tubaria 5: 872**
 - (y) Gills not decurrent
 - m. Margin of cap inflexed at first **Naucoria 5: 828**
 - n. Margin of cap straight
 - (m) Stipe discrete from hymenophore; gills free **Pluteolus 5: 859**
 - (n) Stipe homogeneous with hymenophore **Galera 5: 860**
 - (b) Gills deliquescing **Bolbitius 5: 1073**
 - b. Stipe excentric or none; lignicole **Crepidotus 5: 876**

2. Gill veil cobwebby, hanging curtain-like from the margin, often disappearing completely with age **Cortinarius 5: 889**
- II. Gills separating readily from the hymenophore; margin of cap persistently involute **Paxillus 5: 983**

Melanosporae

5: 991, 9: 136, 11: 69, 14: 149, 16: 112, 18: 82

Spores purple, dark-purple to black

- I. Spores purple or dark-purple
1. Hymenophore discrete from stipe
- a. Stipe volvate at base
- (1) Stipe annulate **Chitoniella 14: 149**
- (2) Stipe not annulate **†Chitonis 5: 992**
(Chitonia, Clarkeinda)
- b. Stipe not volvate
- (1) Stipe annulate **Agaricus 5: 993**
- (2) Stipe not annulate; gills free **Pilosace 5: 1010**
2. Hymenophore continuous with stipe
- a. Stipe annulate **Stropharia 5: 1012**
- b. Stipe not annulate; margin sometimes cortinate
- (1) Margin of cap cortinate; rarely subannulate **Hypholoma 5: 1027**
- (2) Margin not cortinate
- (a) Gills decurrent **Deconica 5: 1058**
- (b) Gills not decurrent
- x. Margin of cap inflexed at first **Psilocybe 5: 1043**
- y. Margin of cap straight **Psathyra 5: 1060**
- II. Spores dark or black, not purple
1. Gills deliquescing **Coprinus 5: 1078**
2. Gills not deliquescing
- a. Gills united above to the hymenophore
- (1) Cap fleshy, fleshy-waxy or membranous
- (a) Gills waxy; spores globose, spiny **Phaeohygrocybe 17: 81**
- (b) Gills not waxy
- x. Margin of cap with a viscid cobwebby cortina **Phaeolimaecium 16: 110**
- y. Margin of cap not viscid-cortinate
- (x) Spores globose to elliptic
- m. Stipe annulate; variegated gills exceeding the margin **Anellaria 5: 1125**
- n. Stipe not annulate
- (m) Cap fleshy, not striate; variegated gills exceeding the margin **Panaeolus 5: 1118**
- (n) Cap membranous, striate; uniform gills not exceeding the margin **Psathyrella 5: 1126**

(y) Spores elongate, fusoid; gills decurrent

Gomphidius 5: 1137

(2) Cap leathery-horny; spores minute, globose

Anthracophyllum 5: 1139

b. Gills free above, not united to the hymenophore; stipe dilated into a lamellar disk above

Montagnites 5: 1140

Order 15. LYCOPERDALES (GASTEROMYCETES)

Typically terrestrial, sometimes lignicole or hypogaeous, fleshy, leathery or membranous; spores borne on basidia, in a receptacle or a peridium, continuous, hyaline or colored.

Family 66. PHALLACEAE

7: 2, 9: 262, 11: 153, 14: 254, 16: 224, 17: 212

Receptacle arising from a volva, bearing outside or inside the sporiferous pulp or gleba, stalk-like, pileiform, or sessile and more or less clathrate

I. Gleba covering the outside of receptacle; receptacle stalk-like, pileate or appendaged

1. Receptacle pileate; gleba on outer surface of pileus

a. Stalk with an appendage below the pileus

(1) Appendage net-like; volva smooth **Dictyophora 7: 3**

(2) Appendage collar-like; volva aculeate

Echinophallus 16: 226

b. Stalk without an appendage

(1) Upper part of volva remaining with pileus, and enclosing the gleba

Cryptophallus 14: 254

(2) Upper part of volva not enclosing gleba at maturity

Ithyphallus 7: 8

(incl. **Alboffiella 16: 227**)

2. Receptacle without hanging pileus; gleba borne directly on the apex of the stalk-like receptacle

a. Receptacle without appendages

(1) Receptacle floccose

Floccimutinus 14: 255

(2) Receptacle not floccose

Mutinus 7: 12

(incl. **Aporophallus Itajahya**

11: 153, Jansia 16: 226)

b. Receptacle or gleba with coralloid processes

Kalchbrennera 7: 14

II. Gleba on the inside of the hollow receptacle, which is clathrate or lobed

1. Receptacle hollow and clathrate, or formed of a few vertical branches joined at the apex

a. Receptacle stalked

(1) Gleba dimorphous, apex with sterile radiate laminae, lower part with convolute subclathrate lobes **Dictyobole 17: 213**

(2) Gleba not dimorphous

(a) Receptacle hollow-clathrate, stalked

- x. Openings polygonal **Simblum 7: 16**
 - y. Openings vertically elongate **Colus 7: 21**
 - (b) Receptacle of thin anastomosing branches, stipitiform at base **Clathrella 16: 228**
- b. Receptacle sessile
 - (1) Hollow-clathrate, or of a few united vertical branches **Clathrus 7: 18**
 - (2) Radiately loculate within **Protuberia 11: 155**
- 2. Receptacle divided above into free laciniae or lobes
 - a. Receptacle expanded above into a horizontal border which is laciniate at the margin **Aseroe 7: 25**
 - b. Receptacle divided directly into lobes
 - (1) Lobes distinct from stalk in structure and color
 - (a) Lobes without winged appendages **Lysurus 7: 22**
 - (b) Lobes with membranous winged appendages **Blumenavia 11: 154**
 - (2) Lobes like the stalk in structure and color
 - (a) Receptacle spheric, lobes contiguous **Phallogaster 11: 155**
 - (b) Receptacle elongate or cupulate; lobes more or less spreading
 - x. Lobes sporiferous **Anthurus 7: 23**
 - y. Lobes not sporiferous **Calathiscus 7: 24**

Family 67. LYCOPERDACEAE

7: 48, 9: 266, 11: 157, 14: 257, 16: 230, 17: 217

Epigaeous, rarely hypogaeous or lignicole, peridium usually globose to pyriform, sessile or stipitate, membrano-coriaceous, furnished with a mouth or opening irregularly, enclosing a more or less powdery, often floccose, gleba; spores globose to ellipsoid, hyaline or colored, smooth or rough.

- I. Peridium more or less completely traversed by a continuation of the stipe, i. e., a columella; gleba lamellate or with membranous septa or more or less uniform

Subfamily Podaxae

- 1. Gleba lamellate; capillitium none; peridium turbinate **Gyrophragmium 7: 51**
- 2. Gleba not lamellate, more or less divided by anastomosing septa, or uniform
 - a. Gleba with septa
 - (1) Capillitium none; stipe central, not volvate, short
 - (a) Peridium with broad false radiate lamellae beneath **Elasmomyces 14: 258**
 - (b) Peridium without lamellae beneath **Secotium 7: 51**
 - (2) Capillitium present, filamentous; stipe volvate **Polyplocium 7: 55**
 - b. Gleba without septa or locules; capillitium copious
 - (1) Peridium subsessile; columella free, not touching the apex of the peridium
 - (a) Epigaeous

- x. Columella cup-shaped; exoperidium areolate
Cycloderma 7: 56
- y. Columella obturbinate; exoperidium splitting into lobes
Geasteropsis 17: 229
- (b) Hypogaeous; spores subfusoid **Mesophellia 7: 56**
- (2) Peridium stipitate; columella touching the apex of the peridium
 - (a) Peridium splitting longitudinally, or laterally lacerate
 - x. Peridium opening lengthwise by valves
Chaenoderma 9: 268
 - y. Peridium laterally lacerate **Cauloglossum 7: 57**
 - (b) Peridium opening horizontally or circularly
 - *x. Peridium opening around the stipe
Podaxon 7: 58
 - y. Peridium opening circularly around the middle
† **Sphaerocybis 7: 60**
(**Sphaericeps**)
- II. Peridium typically without a columella, with exo- and endoperidium; gleba floccose, rarely septate **Subfamily Geasterae**
- I. Peridium stalked
 - a. Inner peridium alone persistent
 - (1) Peridium fixed to stipe, with distinct mouth
Tylostoma 7: 60
 - (2) Peridium easily separable from stipe; mouth none
Queletia 7: 65
 - b. Both peridial layers persistent
 - (1) Exoperidium forming a volva about the stipe
 - (a) Endoperidium convex; spores on upper surface
Battarea 7: 65
 - (b) Endoperidium hemispheric; spores within
† **Podoloma 17: 223**
(**Battareopsis**)
 - (2) Exoperidium not volvate; inner peridium with a mouth
 - (a) Endoperidium with plicate-sulcate mouth; capillitium copious
Husseyia 7: 67
 - (b) Endoperidium suspended free in cavity of exoperidium, mouth with bright-colored scales
Mitromyces 7: 68
- 2. Exoperidium sessile, typically stellate-lacinate, containing 1 or more endoperidia
 - a. Endoperidium one
 - (1) Spores borne on the inside
 - (a) Exoperidium closed **Diploderma 7: 92**
 - (b) Exoperidium opening stellately or circularly
 - x. Exoperidium stellate
 - (x) Endoperidium dehiscent, usually by a mouth; capillitium present
Geaster 7: 70
 - (y) Endoperidium indehiscent; capillitium none
Stella 9: 272

- y. Exoperidium cup-shaped, mouth minute, ciliate
Diplocystis 7: 92
- (2) Spores borne on the outside of endoperidium; stellate
Trichaster 7: 93
- b. Endoperidia several
 - (1) Mycelium crust-like; capillitium not hollow
Broomeia 7: 93
 - (2) Mycelium not crust-like; capillitium hollow
Coelomyces 7: 94
- III. Peridium without a columella; exoperidium lacking or consisting of a papery or spiny cortex; gleba floccose
Subfamily Lycoperdae
- 1. Peridium with a distinct, stalk-like sterile base; exoperidium spiny or warty
Lycoperdon 7: 106
- 2. Peridium without sterile base; gleba fertile throughout
 - a. Peridium sessile or nearly so
 - (1) Capillitium a dense elastic mass discrete from the peridium
 - (a) Peridium persistent
Lanopila 7: 95
 - (b) Peridium falling away
Eriosphaera 7: 96
 - (2) Capillitium not dense elastic and discrete
 - (a) Peridium persistent
 - x. Mouth at apex, or lacking
Eovista 7: 96
 - y. Mouth at base when in the ground
Catastoma 11: 165
 - (b) Peridium entirely falling away
Lycoperdopsis 16: 243
 - b. Peridium stipitate; exoperidium dehiscing above along undulating folds
Calvatia 7: 105
- IV. Peridium without columella; gleba with cell-like spaces, often containing sporangioles, or powdery
Subfamily Sclerodermatae
- 1. Gleba without sporangioles, finally powdery
 - a. Peridium none; gleba naked, subcylindric
Gymnoglossum 11: 158
 - b. Peridium present, enclosing the gleba
 - (1) Peridium sessile or nearly so
 - (a) Peridium not dehiscent
 - x. Gleba reticulate-veined, hard
Corditubera 14: 266
 - y. Gleba not reticulate-veined, somewhat floccose
 - (x) Spores globose
Hippoperdon 7: 133
 - (y) Spores fusiform
Castoreum 7: 142
 - (b) Peridium dehiscent stellately or irregularly
Scleroderma 7: 134
(incl. **Caloderma 16: 243**)
 - (2) Peridium stalked
 - (a) Peridium not dehiscent, clavate
†Corynogaster 14: 266
(**Clavogaster**)
 - (b) Peridium dehiscent

- x. Peridium clavate, splitting above and entirely disappearing
Favillea 7: 146
- y. Peridium globoid, not entirely disappearing
 - (x) Stipe hollow; peridium dehiscing irregularly, or rimose
Phellorina 7: 145
 - (y) Stipe not hollow
 - m. Peridium many-lobed; stipe fibrous-woody
Xylopodium 7: 143
 - n. Peridium reticulately dehiscent; stipe solid
Areolaria 7: 144
- 2. Gleba containing numerous sporangioles
 - a. Sporangioles fleshy or gelatinous
 - (1) Peridium stipitate; stipe with persistent cupulate volva
Dictyocephalus 17: 238
 - (2) Peridium not volvate, sessile or with stipe-like base
 - (a) Parasitic in glumes; peridium not dehiscent
Testicularia 7: 150
 - (b) Terrestrial or parasitic on roots
 - x. Peridium with sterile stipe-like base, mucose-cellular within
Polysaccum 7: 146
 - y. Peridium sessile, fleshy-cellular within
Polygaster 7: 146
 - b. Sporangioles membranous, not fleshy or gelatinous
 - (1) Peridium corky; sporangioles round
Arachnium 7: 150
 - (2) Peridium membranous; sporangioles cylindric, gyrose
Scoleciocarpus 7: 151
 - (3) Peridium hard; sporangioles large, flexuous
Paurocotylis 7: 152

Family 68. HYMENOGASTRACEAE

7: 154, 9: 280, 11: 168, 14: 267, 16: 245, 17: 239

Typically subterranean, very rarely epigaeous, mycelium often persistent; peridium not opening at maturity, wall occasionally lacking, more or less globose; gleba fleshy or gelatinous, putrescent, more or less cellular or loculate, capillitium none.

- I. Peridium wall present, distinct
 - i. Peridium easily separating from the gleba
 - a. Peridium volvate
 - (1) Peridium silky, reticulate-sulcate; volva gelatinous
Clathrogaster 16: 250
 - (2) Peridium waxy-gelatinous, not sulcate
Torrendia 17: 241
 - b. Peridium not volvate
 - (1) Peridium vertical, elongate-cylindric; basidia 2-spored
Protoglossum 11: 158
 - (2) Peridium more or less globose

- (a) Endosporium and exosporium separated by a hyaline mucus
Leucogaster 9: 281
- (b) Endosporium and exosporium contiguous
 - x. Spores elliptic to lanceolate, smooth
Hysterangium 7: 155
 - y. Spores globose, rough or spiny
 - (x) Peridium lanate; basidia usually 7-spored
Sclerogaster 11: 169
 - (y) Peridium not lanate; basidia 3-4-spored
 - m. Gleba with a sterile base, radicate
Octaviania 7: 158
 - n. Gleba without a sterile base, not radicate
Martellia 16: 252
- 2. Peridium separating from the gleba with difficulty or not at all
 - a. Peridium covered with thread-like masses of mycelium
 - (1) Spores hyaline
Rhizopogon 7: 161
 - (2) Spores colored
Melanogaster 7: 164
 - b. Peridium without thread-like masses of mycelium
 - (1) Spores spiny
 - (a) Gleba percurrent by a columella
Arcangeliella 16: 255
 - (b) Gleba without a columella
Hydnangium 7: 175
 - (2) Spores not spiny, smooth, verrucose, rugose, etc.
 - (a) Gleba with branching columella and sterile base
Dendrogaster 17: 240
 - (b) Gleba without columella or sterile base
Hymenogaster 7: 168
(incl. *Chamonixia*, *Leucophleps*
16: 251)
- II. Peridium wall lacking
 - 1. Hypogaeous
 - a. Spores elliptic, striate-sulcate
Gautiera 7: 177
 - b. Spores globose, spiny or warty
Gymnomyces 16: 249
 - 2. Epigaeous; spores globose, warty
Macowanites 7: 179

Family 69. NIDULARIACEAE

7: 28, 9: 265, 11: 156, 14: 256, 16: 229, 17: 214

Epigaeous, finicole or lignicole, funnel-shaped to cup-shaped, leathery, containing one to many lentiform or globoid sporangioles, the latter attached by a cord to the wall of the peridium; spores elliptic, smooth.

- I. Peridium single
 - 1. Peridium with several to many sporangioles
 - a. Peridium torn at the apex in opening
Nidularia 7: 28
 - b. Peridium opening by a deciduous membrane
 - (1) Sporangioles attached to wall by a cord
 - (a) Spores mixed with filaments; peridium of three united layers
Cyathus 7: 32

- (b) Spores not mixed with filaments; peridium of a single cottony layer

Crucibulum 7:43

- (2) Sporangioles densely crowded in a glutinous substance

Nidula 17:215

2. Peridium with a single gelatinous sporangiole

Dacryobolus 7:45

- II. Peridium double, outer stellate, inner with a single viscous sporangiole

Sphaerobolus 7:46

FUNGI IMPERFECTI

Secondary or propagative stages of other fungi, largely Ascomycetes, characterized by the presence of conidia borne in perithecia-like or disk-like structures, on a stroma, or on a mycelial mass. Many of these forms have been connected by means of experiment with the corresponding perfect stage, but the vast majority of them are found alone in nature.

Order 16. PHOMATALES (Sphaeropsideae Sacc. 3:1)

Conidia borne on simple or branched threads, so-called basidia, in pycnidia; pycnidia globose, conic, elongate, dimidiate, disk-shaped or cup-shaped, membranous, carbonous, coriaceous or somewhat fleshy, usually black, sometimes bright-colored.

Family 70. PHOMATACEAE (Sphaerioidaceae 3:1)

Pycnidia globose, conic or lens-like, membranous, carbonous or subcoriaceous, black, immersed or superficial, separate or in a stroma; conidia from 1 to many-celled, hyaline or dark.

Hyalosporae

3:1, 10:100, 11:472, 14:844, 16:825, 18:220

Conidia 1-celled, hyaline, globose, ovoid or oblong, often curved

- I. Pycnidia separate

1. Pycnidia smooth

- a. Pycnidia borne in discolored areas, i. e., maculicole

Phyllosticta 3:3

- b. Pycnidia not maculicole

- (1) Conidia single, not in chains

- (a) Conidia muticate, not ciliate or trigonous

- x. Subicle none

- (x) Pycnidia muticate or papillate, not rostrate or cylindric

- m. Pycnidia erumpent or immersed

- (m) Basidia 1-spored, mostly short

- r. Pycnidia papillate

- (r) Growing on lichens

Lichenosticta 16:851

- (s) Not lichenicole

- h. Basidia hamate

Phomopsis 18:264

- i. Basidia not hamate
 - (h) Conidia less than 15μ
Phoma 3: 65
 - (i) Conidia 15μ or more long
Macrophoma 10: 189
- s. Pycnidia astomous or irregularly dehiscent
 - (r) Pycnidia subcarnose, sclerotoid
 - h. Conidia obtuse at both ends
Plenodomus 3: 184
 - i. Conidia acute at both ends
Sclerotiopsis 3: 184
 - (s) Pycnidia carbonous, circumscissile
Piptostomum 3: 183
- (n) Basidia several-spored, branched
Dendrophoma 3: 178
- n. Pycnidia superficial
 - (m) Pycnidia dense in asteroma-like spots
Asteromella 3: 182
 - (n) Pycnidia not in such spots
 - r. Pycnidia globose or nearly so
 - (r) Basidia short, straight
Aposphaeria 3: 169
 - (s) Basidia beautifully circinate
Pyrenotrichum 3: 184
 - (t) Basidia none
Mycogala 3: 185
 - s. Pycnidia turbinate, carnose
Crocicreas 3: 183
- (y) Pycnidia rostrate or cylindric
 - m. Pycnidia globose, rostrate
Sphaeronaema 3: 185
 - n. Pycnidia cylindric
Glutinium 11: 500
- y. Subicle present
 - (x) Subicle white, cobwebby
Cicinnobolus 3: 216
(incl. *Byssocystis* 11: 502)
 - (y) Subicle dark
 - m. Subicle usually radiate
Asteroma 3: 201
 - n. Subicle not radiate
Chaetophoma 3: 199
- (b) Conidia ciliate, forked or angled
 - x. Conidia ciliate at apex
 - (x) Apex 1-ciliate
Strasseria 18: 284
 - (y) Apex several-ciliate
Neottiospora 3: 216
 - y. Conidia forked or angled
 - (x) Conidia Y-like; subicle present
Ypsilonia 3: 215
 - (y) Conidia trigonous
Trigonosporium 16: 892
- (2) Conidia in chains

- (a) Chains of spores simple or nearly so
Sirococcus 3: 217
- (b) Chains of spores connected, often net-like
Peckia 3: 217
- 2. Pycnidia with hairs or bristles
 - a. Bristles stellate; conidia ovoid
Staurochaeta 3: 218
 - b. Bristles simple
 - (1) Basidia usually simple, conidia fusoid
Vermicularia 3: 221
 - (2) Basidia usually branched, conidia oblong
Pyrenochaeta 3: 219
- II. Pycnidia in a stroma
 - 1. Stroma globose, conic or vasa-like
 - a. Conidia in chains
**Sirodothis*
 - b. Conidia single
 - (1) Stroma globose, conic or pulvinate
 - (a) Stroma more or less globose or pulvinate
 - x. Stroma unilocular
Dothiopsis 10: 228
 - y. Stroma several- or many-locular
 - (x) Pycnidia distinct
 - m. Pycnidia aggregate in a basal stroma
Dothiorella 3: 235
 - n. Pycnidia more deeply immersed
 - (m) Necks not joined in one ostiole
Lamyella 11: 510
 - (n) Necks joined in a single ostiole
Torsellia 11: 510
 - (y) Pycnidia merely locules in the stroma
 - m. Locules several, not numerous
Rabenhorstia 3: 243
 - n. Locules very numerous
Fuckelia 3: 244
 - (b) Stroma conic-truncate, conidia bacillar
Ceuthospora 3: 277
 - (2) Stroma vasa-like
 - (a) Conidia fusoid or bacillar
Fusicoccum 3: 247
 - (b) Conidia allantoid
Cytospora 3: 252
 - (c) Conidia globose or ovoid
Cytosporella 3: 251
 - 2. Stroma applanate, effuse or linear
 - a. Stroma linear, conidia connate in fours
Gamosporella 10: 238
 - b. Stroma applanate or effuse
 - (1) Growing on leaves and stems
Placosphaeria 3: 244
 - (2) Growing on fungi
Anthracerodermis 10: 238

Of Uncertain Position.

Manginia 18: 266. a *Phoma* with micro- and macropycnidia

Phaeosporae

3: 291, 10: 251, 11: 511, 14: 919, 16: 905, 18: 302

Conidia 1-celled, dark, globose, ovoid or oblong

I. Pycnidia separate**1. Pycnidia without mycelium or subicle****a. Pycnidia smooth, not hairy**

(1) Conidia in chains, globose

Sirothecium 10: 270

(2) Conidia not in chains

(a) Pycnidia sessile, spheroid

x. Pycnidia beaked

Naemosphaera 10: 259

y. Pycnidia not beaked

(x) Pycnidia with a distinct orbicular locule

Hypocenia 3: 320

(y) Pycnidia without such a locule

m. Conidia on long basidia

(m) Pycnidia thin, white-lacerate at top

Harknessia 3: 320

(n) Pycnidia subcarbonous, not lacerate

Sphaeropsis 3: 291

n. Basidia very short or obsolete

Coniothyrium 3: 305

(b) Pycnidia stipitate, clavate

Levieuxia 3: 321

b. Pycnidia hairy or setose

Chaetomella 3: 321**2. Pycnidia with distinct mycelium or subicle**

a. Pycnidia astomous, in a dark subicle

Capnodiastrum 10: 272

b. Pycnidia perforate, with basal hyphae

Cicinobella 18: 302**II. Pycnidia cespitose or in a stroma****1. Pycnidia in dense erumpent clusters****Haplosporella 3: 323****2. Pycnidia in a definite stroma**

a. Stroma appanate or effuse, foliicole

Discomycetopsis 11: 517

b. Stroma dot-like, discoid or hemispheric

(1) Stroma dot-like, immersed

Melanconiopsis 16: 915

(2) Stroma discoid to hemispheric

(a) Stroma discoid; spores large

Nothopatella 11: 517

(b) Stroma pulvinate; spores minute, catenulate

Cytoplea 3: 325

(c) Stroma hemispheric; pycnidia circinate

†Circinastrum 3: 325**(Weinmannodora)****Hyalodidymae**

3: 384, 10: 295, 11: 522, 14: 942, 16: 925, 18: 335

Conidia hyaline, 1-septate, ovoid, ellipsoid or oblong

I. Pycnidia separate**1. Pycnidia not beaked**

a. Pycnidia in discolored areas, maculicole

- (1) Pycnidia immersed, then erumpent, perforate
 - (a) Conidia muticate **Ascochyta 3:384**
 - (b) Conidia with setae at the apex **Robillardia 3:407**
- (2) Pycnidia superficial, astomous **Puccinospora 10:317**
- b. Pycnidia not maculicole
 - (1) Pycnidia hairy **Didymochaete 14:953**
(**Vermiculariella 16:940**)
 - (2) Pycnidia smooth
 - (a) Conidia with an appendage at each end
 - x. Conidia with 1 or more bristles **Darluca 3:410**
 - y. Conidia with cap-like appendages **Tiarospora 10:311**
 - (b) Conidia muticate
 - x. Basidia 1-spored
 - (x) Pycnidia on a cobwebby subicle, phyllogenous **Actinonema 3:408**
 - (y) Pycnidia without subicle, ramicole **Diplodina 3:411**
 - y. Basidia several-many-spored **Cystotricha 3:413**
 - 2. Pycnidia beaked **Rhynchophoma 3:414**
- II. Pycnidia in a stroma
 - 1. Stroma effuse
 - a. Stroma consisting of two distinct layers **Thoracella 16:941**
 - b. Stroma of a single layer **Placosphaerella 14:948**
 - 2. Stroma verruciform
 - a. Stroma superficial **Pazschkella 16:528**
 - b. Stroma erumpent **Cytodiplospora 11:942**

Phaeodidymae

2:329, 10:275, 11:518, 14:927, 16:915, 18:319

Spores dark, 1-septate, ovoid to oblong

- I. Pycnidia separate
 - 1. Pycnidia beaked
 - a. Pycnidia hairy **Rhynchodiplodia 18:329**
 - b. Pycnidia smooth **Pellioniella 18:329**
 - 2. Pycnidia not beaked
 - a. Pycnidia hairy **Chaetodiplodia 3:374**
 - b. Pycnidia smooth
 - (1) Conidia with a mucous layer, very large **Macrodiplodia 3:374**
 - (2) Conidia without a mucous layer
 - (a) Pycnidia erumpent
 - x. Conidia 1-ciliate at apex ***Chaetoconis 10:337**
(**Kellermannia in part**)
 - y. Conidia muticate
 - (x) Conidia less than 15 μ long **Microdiplodia 18:323**

- (y) Conidia 15μ or more long **Diplodia 3:329**
 (b) Pycnidia superficial, lignicole **Diplodiella 3:375**
 II. Pycnidia cespitose or in a stroma **Botryodiplodia 3:377**
 1. Pycnidia cespitose
 2. Pycnidia in a stroma
 a. Pycnidia and subicle enclosed in a hemispheric stroma **Lasiodiplodia 14:939**
 b. Pycnidia without subicle, in a globose stroma **Diplodiopsis 18:335**

Hyalophragmiae

3:418, 10:330, 11:533, 14:962, 16:947, 18:358

Conidia hyaline, 2-several-septate, oblong to fusoid

- I. Pycnidia more or less globose
 1. Subicle none
 a. Conidia appendaged at apex
 (1) Seta 1 **Kellermannia 10:337**
 (2) Setae 3 **Bartalinia 16:951**
 b. Conidia muticate **Stagonospora 3:445**
 2. Subicle present, dark, phyllogenous **Asteromidium 10:338**
 II. Pycnidia elongate to cylindric **Mastomyces 3:456**

Phaeophragmiae

3:418, 10:317, 11:528, 14:953, 16:943, 18:362

Conidia hyaline, 2-several-septate, oblong to fusoid

- I. Pycnidia separate
 1. Conidia free from each other
 a. Conidia muticate
 (1) Pycnidia papillate or subastomous
 (a) Pycnidia with flattened base **Macrobatis 11:532**
 (b) Pycnidia globose, without flattened base
 x. Pycnidia on a stellate subicle, superficial **Couturea 3:442**
 y. Pycnidia without a subicle, erumpent
 (x) Pycnidia hairy **Wojnowicia 14:960**
 (y) Pycnidia smooth **Hendersonia 3:418**
 (2) Pycnidia opening widely, with an operculum
 (a) Pycnidia superficial, dark, hairy **Angiopoma 3:442**
 (b) Pycnidia immersed, pale, smooth **Lichenopsis 3:442**
 b. Conidia appendaged
 (1) Conidia 1-ciliate at each end **Cryptostictis 3:443**
 (2) Conidia 1-ciliate at base by the basidium
 †**Uroconis 18:368**
 (**Urohendersonia**)
 (3) Conidia with a round or cup-like appendage at each end **Santiella 16:947**

- 2. Conidia united in groups
 - a. Conidia united into a fascicle *Eriosporina* 11: 532
 - b. Conidia stellately united *Prosthemium* 3: 444
- II. Pycnidia locules in a stroma *Hendersonula* 3: 445

Hyalodictyae

16: 955

Conidia hyaline, muriform, ovoid or oblong

- I. Pycnidia erumpent, papillate †*Hyalothyris* 16: 955
(*Hyalothyridium*)

Phaeodictyae

3: 459, 10: 338, 11: 536, 14: 964, 16: 951, 18: 369

Conidia dark, muriform, oblong to ovoid, rarely radiate or cruciate

- I. Pycnidia separate
 - 1. Conidia not reticulately roughened
 - a. Pycnidia corticole, erumpent *Camarosporium* 3: 459
 - b. Pycnidia xylogenous, subsuperficial *Cytosporium* 3: 470
 - 2. Conidia reticulately roughened *Endobotrya* 3: 470
- II. Pycnidia locules in a stroma *Dichomera* 3: 471

Scolecosporae

3: 474, 10: 349, 11: 538, 14: 967, 16: 956, 18: 376

Conidia hyaline or dilutely colored, elongate-fusoid, bacillar or filiform, continuous or septeate.

- I. Pycnidia separate
 - 1. Pycnidia membranous or carbonous
 - a. Pycnidia superficial
 - (1) Pycnidia hairy
 - (a) Conidia single on the basidia *Trichocollonema* 18: 404
 - (b) Conidia ternate on the basidia *Gamospora* 10: 402
 - (2) Pycnidia smooth
 - (a) Pycnidia beaked *Cornularia* 3: 598
 - (b) Pycnidia not beaked
 - x. Conidia usually expelled in a ball
Collonema 10: 397
 - y. Conidia not expelled in a ball *Septorella* 14: 981
 - b. Pycnidia immersed or erumpent
 - (1) Pycnidia hairy, maculicole *Trichoseptoria* 11: 548
 - (2) Pycnidia smooth
 - (a) Pycnidia beaked *Sphaerographium* 3: 596
 - (b) Pycnidia not beaked
 - x. Pycnidia maculicole, phyllogenous
Septoria 3: 474
 - y. Pycnidia not maculicole
 - (x) Pycnidia complete at top, usually papillate
Rhabdospora 3: 578

- (y) Pycnidia more or less incomplete at top
 - m. Pycnidia gaping, showing a gelatinous spore mass
Gelatinosporium 3: 596
 - n. Pycnidia not exposing a gelatinous mass
 - (m) Pycnidia foliicole **Phleospora 3: 577**
 - (n) Pycnidia rami-caulicole **Phlyctaena 3: 593**
- 2. Pycnidia suberose, incomplete, often pale
 - a. Pycnidia cespitose **Micropera 3: 604**
 - b. Pycnidia merely gregarious **Micula 3: 604**
- II. Pycnidia in a stroma
 - 1. Conidia 4-6 fasciculate on a basidium **Eriospora 3: 600**
 - 2. Conidia separate
 - a. Conidia setose-penicillate **Dilophospora 3: 600**
 - b. Conidia muticate
 - (1) Stroma superficial, setose **†Merodothidis 18: 405**
(Septodothideopsis)
 - (2) Stroma erumpent or immersed
 - (a) Pycnidia distinct in the stroma **Cytosporina 3: 601**
 - (b) Pycnidia locules in the stroma **Septosporiella 10: 403**

Family 71. ZYTHIACEAE

(Nectrioidaceae Sacc. 3: 613)

Pycnidia, and stromata when present, fleshy or waxy, light-colored, white, yellow, red or orange, globose, more rarely cup-shaped or hysterioid; conidia various, mostly hyaline.

Subfamily Zythiae

Pycnidia more or less globose

Hyalosporae

3: 613, 10: 404, 11: 552, 14: 988, 16: 983, 18: 407

- I. Pycnidia separate
 - 1. Pycnidia smooth
 - a. Pycnidia beakless
 - (1) Conidia in chains **Sirozythia 18: 410**
 - (2) Conidia not catenulate
 - (a) Pycnidia on creeping hyphae **Eurotiopsis 10: 406**
 - (b) Pycnidia without mycelium
 - x. Conidia spiny or ciliate
 - (x) Conidia spiny **Roumegueriella 3: 616**
 - (y) Conidia with several cilia at apex
Ciliospora 18: 410
 - y. Conidia smooth
 - (x) Pycnidia single-walled
 - m. Pycnidia more or less papillate
Zythia 3: 614

n. Pycnidia with crateriform ostiole

Libertiella 3: 616

o. Pycnidia cup-shaped

Lemalis 3: 672

(y) Pycnidia with outer circumscissile wall

Dichlaena 3: 620

b. Pycnidia beaked

Sphaeronaemella 3: 617

2. Pycnidia hairy or spiny

a. Pycnidia densely beset with conoid 1-celled setae

Muricularia 3: 218

b. Pycnidia with slender bristles or hairs

(1) Hairs fasciculate

Collocystis 3: 616

(2) Hairs separate

(a) Hairs everywhere but at the apex

Chaetozythia 10: 406

(b) Hairs only around the wide ostiole

Pseudozythia 18: 409

11. Pycnidia cespitose or in a stroma

1. Pycnidia cespitose, beaked; conidia in chains

Trelesiella 14: 989

2. Pycnidia in a stroma

a. Stroma more or less pulvinate; conidia fusoid

Aschersonia 3: 619

b. Stroma fruticose branched; conidia bacillar

Hypocreodendrum 14: 992

Phaeosporae

10: 409, 18: 416

Conidia dark, 1-celled, globose to oblong

I. Pycnidia separate, beaked; basidia obsolete Ampullaria 18: 416

II. Pycnidia in a stroma Martinella 10: 409

Hyalodidymae

3: 621, 10: 409, 11: 553, 16: 986, 18: 416

Conidia hyaline or nearly so, 1-septate, ovoid to oblong

I. Basidia simple or nearly so Pseudodiplodia 3: 621

II. Basidia dendroid branched Diplozythia 18: 417

Hyalophragmiae

3: 621, 10: 410, 18: 417

Conidia hyaline, several-septate, elliptic to fusoid

I. Conidia oblong-fusoid Stagonopsis 3: 621

II. Conidia 4-radiate, with septate radii Chistospora 3: 621

Scolecosporae

3: 622, 10: 410, 18: 418

Conidia hyaline, bacillar or filiform, continuous or septate

I. Pycnidia separate

- | | |
|--|-----------------------------|
| I. Pycnidia beakless, almost discoid | Trichocrea 10: 410 |
| 2. Pycnidia beaked; conidia 1-ciliate | Mycorhynchus 18: 418 |
| II. Pycnidia in a stroma; conidia hamate | Polystigmia 3: 622 |

Subfamily Patellinae

Pycnidia cupulate or hysterioid

Hyalosporae

3: 622, 10: 411, 11: 553, 18: 419

Conidia hyaline, 1-celled, globose to oblong

- | | |
|---|---|
| I. Pycnidia separate | |
| 1. Pycnidia cup-shaped | |
| a. Pycnidia smooth | |
| (1) Pycnidia carnose; basidia simple, cylindric | Patellina 3: 622 |
| (2) Pycnidia submembranous; basidia branched | Ollula 10: 411 |
| b. Pycnidia hairy | |
| (1) Conidia in chains | *Sirocyphis |
| (2) Conidia not in chains | Cyphina 3: 623 |
| 2. Pycnidia flattened, oblong, cleft | Hysteromyxa 3: 622 |
| II. Pycnidia in a stroma | |
| 1. Stroma suberose, white | Munkia 10: 408 |
| 2. Stroma corneous, black | †Pycnostroma 18: 415 (Aschersoniopsis) |

Hyalophragmiae

11: 553

Conidia hyaline, several-septate, oblong

- | | |
|----------------------------|------------------------------|
| I. Pycnidia immersed, waxy | Pseudostictis 11: 553 |
|----------------------------|------------------------------|

Scolecosporae

10: 411

Conidia hyaline, filiform, continuous

- | | |
|--|-----------------------------|
| I. Pycnidia waxy, cup-shaped, on a white subicle | Trichosperma 10: 411 |
|--|-----------------------------|

Family 72. LEPTOSTROMATACEAE

Pycnidia membranous or carbonous, black, more or less distinctly dimidiate, scutiform, astomous, ostiolate or cleft, erumpent or superficial.

Hyalosporae

3: 625, 10: 412, 11: 553, 14: 992, 16: 986, 18: 419

Conidia hyaline, 1-celled, globose to oblong

- | | |
|--|--|
| I. Pycnidia separate | |
| 1. Pycnidia astomous or variously perforate, but not cleft | |
| a. Basidia lacking | |

LEPTOSTROMATACEAE

Phaeodidymae

10: 426, 18: 431

Conidia dark, 1-septate, oblong to fusoid

- I. Pycnidia separate
 - a. Pycnidia ostiolate **Diplopeltis 10: 426**
 - b. Pycnidia longitudinally cleft **Holcomyces 18: 431**
- II. Pycnidia in a stroma, ostiolate **Seynesiopsis 18: 431**

Hyalophragmiae

3: 653, 10: 426, 11: 557, 14: 996, 16: 992, 18: 434

Conidia hyaline, 2-several-septate, oblong to fusoid

- I. Pycnidia astomous or ostiolate, not cleft
 - 1. Conidia muticate; pycnidia with creeping hyphae **Asterothyrium 18: 434**
 - 2. Conidia ciliate
 - a. Conidia fusoid, 1-ciliate at each end **Discosia 3: 653**
 - b. Conidia cruciate, each arm 1-ciliate **Entomosporium 3: 657**
- II. Pycnidia rimose dehiscent **Cystothyrium 10: 427**

Phaeophragmiae

14: 997, 18: 435

Conidia dark, 1-several-septate, oblong to fusoid

- I. Pycnidia separate, rimose-gaping; conidia 1-ciliate each way **Labridium 14: 997**
- II. Pycnidia in a stroma; conidia muticate, finally black **Phragmopeltis 18: 435**

Scolecosporae

3: 658, 10: 428, 11: 557, 14: 997, 16: 992, 18: 436

Conidia normally hyaline, bacillar or filiform, continuous or septate

- I. Pycnidia astomous or opening variously
 - 1. Pycnidia with a round ostiole; conidia catenate **Crandallia 14: 998**
 - 2. Pycnidia astomous or irregularly dehiscent
 - a. Pycnidia with radiate-fimbriate margin **Actinothyrium 3: 658**
 - b. Pycnidia not radiate-fimbriate
 - (1) Pycnidia of two kinds, small simple and large loculate **Brunchorstia 10: 431**
 - (2) Pycnidia of one kind
 - (a) Conidia muticate
 - x. Pycnidia corrugate, not hairy; conidia not separating **Melophia 3: 658**
 - y. Pycnidia hairy; conidia separating into joints **Chaetopeltis 14: 998**
 - (b) Conidia ciliate-penicillate at apex **Giulia 18: 435**

II. Pycnidia elongate, longitudinally cleft

- 1. Basidia simple, bacillar **Leptostromella 3: 659**
- 2. Basidia umbellately branched ***Petasodes 14: 998**

Family 73. EXCIPULACEAE

Pycnidia membranous or carbonous, black, cup-shaped, patellate or hysteroïd, at first more or less spheric, but at length widely open, crumpled or superficial, glabrous or hairy.

Hyalosporae

3: 665, 10: 432, 11: 558, 14: 999, 16: 993, 18: 436

Conidia hyaline, 1-celled, globose to oblong

I. Pycnidia pilose or setose

- 1. Conidia muticate; pycnidia cupulate **Amerosporium 3: 680**
- 2. Conidia ciliate; pycnidia cupulate
 - a. Conidia several-ciliate at apex **Polynema 3: 687**
 - b. Conidia 1-ciliate at each end **Dinemasporium 3: 683**

II. Pycnidia smooth or nearly so

- 1. Pycnidia more or less cup-shaped, or disciform
 - a. Pycnidia composed of conglutinate dark hyphae **Godroniella 3: 665**
 - b. Pycnidia with cellular context
 - (1) Pycnidia cup-like when mature, sometimes obconoid
 - (a) Basidia simple
 - x. Pycnidia cup-shaped **Excipula 3: 665**
 - y. Pycnidia terete-conic **Catinula 3: 673**
 - (b) Basidia branched **Heteropatella 3: 670**
 - (2) Pycnidia subglobose-collabent, disciform or verruciform
 - (a) Pycnidia subglobose, irregularly dehiscent and collabent **Dothichiza 3: 671**
 - (b) Pycnidia disciform, often imperfect and covered by epiderm **Discula 3: 674**
 - (c) Pycnidia verruciform; conidia mucose-involute **Agyriellopsis 18: 438**
- 2. Pycnidia hysteroïd or valvately gaping
 - a. Pycnidia widely hysteroïd **Psilospora 3: 679**
 - b. Pycnidia valvately gaping
 - (1) Basidia typically branched **Sporonema 3: 677**
 - (2) Basidia simple or none **Pleococcum 3: 679**

Phaeosporae

10: 439, 18: 441

Conidia dark, 1-celled, globose to oblong

- I. Pycnidia patellate, smooth **Phaeodiscula 10: 439**
- II. Pycnidia cupulate, setulose at margin **†Coniothyris 10: 439**
(Coniothyriella)

Hyalodidymae

3: 687, 10: 440, 11: 560, 14: 1002, 16: 993, 18: 442

Conidia hyaline, 1-septate, oblong to fusoid

I. Pycnidia discoid or patellate

1. Pycnidia discoid, veiled; basidia simple **Discella 3: 687**
2. Pycnidia patellate, subsuperficial; basidia branched
Pseudopatella 3: 688

II. Pycnidia hysterioid or irregularly gaping

1. Pycnidia hysterioid, elongate **Scaphidium 18: 443**
2. Pycnidia globose, then irregularly gaping; conidia catenate
Siropatella 18: 443

Hyalophragmiae

3: 688, 10: 441, 11: 560, 14: 1002, 18: 443

Conidia hyaline, 2-several-septate, oblong to fusoid

I. Pycnidia cupulate or subcupulate

1. Pycnidia smooth; conidia sometimes 1-ciliate
Excipulina 3: 688
2. Pycnidia setulose
 - a. Conidia fusoid, inner cells somewhat colored
Excipularia 3: 689
 - b. Conidia X-shaped, entirely hyaline
Acanthothecium 10: 442

II. Pycnidia discoid and inequal, margin lacerate

Pilidium 3: 689**Phaeophragmiae**

10: 443, 18: 444

Conidia dark, 2-several-septate, oblong to fusoid

I. Pycnidia hysterioid; conidia not catenate **Dichaenopsis 18: 444**

II. Pycnidia laciniately dehiscent; conidia catenate

Taeniophora 10: 443**Scolecosporae**

3: 690, 10: 443, 14: 1002, 16: 993, 18: 445

Conidia typically hyaline, bacillar or filiform, continuous or septate

I. Pycnidia separate

1. Conidia separating at the joints
Schizothyrella 3: 690
(incl. **Pseudocenangium 10: 445**)
2. Conidia not separating
 - a. Pycnidia discoid, margin lacerate; conidia filiform
Protostegia 3: 690
 - b. Pycnidia mostly cupulate, not lacerate; conidia hamate
Oncospora 3: 691

II. Pycnidia in a stroma, pezizoid

Ephelis 3: 691

Order 17. MELANCONIALES

Family 74. MELANCONIACEAE

Pycnidia lacking, or reduced to a stratum merely; strata typically bearing basidia of various sorts upon which conidia arise, forming masses or acervuli, which are immersed or erumpent, black, gray or light-colored, waxy, corneous or even sub-membranous.

Hyalosporae

3: 698, 10: 446, 11: 562, 14: 1004, 16: 995, 18: 447

.Conidia hyaline, 1-celled, globose to oblong, rarely dilutely colored

I. Conidia muticate

1. Masses, or acervuli, not setose

a. Conidia not catenate

(1) Masses bright-colored, subtremelloid

Hainesia 3: 698

(2) Masses gray to black, rarely bright-colored, waxy or horny

(a) Masses gray, rarely bright-colored, waxy

x. Growing on leaves or fruits for the most part

Gloeosporium 3: 699

y. Growing usually on twigs of trees or shrubs

Myxosporium 3: 722

(b) Masses black, discoid, horny

Melanostroma 3: 728

b. Conidia in chains

(1) Masses oblong, hysterooid, dark, hard

Hypodermium 3: 728

(2) Masses discoid, pulvinate or conoid

(a) Masses bright-colored, softish

Myxosporella 3: 729

(b) Masses dark to black

x. Basidia repeatedly branched

(x) Masses discoid; basidia dichotomous

Blennoria 3: 730

(y) Masses depressed-pulvinate; basidia verticillate

Agyriella 3: 731

(z) Masses perithecioid; basidia irregularly branched

***Hormyllum 3: 733**

y. Basidia simple

(x) Masses perithecioid, black

***Thecostroma 3: 752**

(y) Masses scutellate, olive or ashen

Myxormia 3: 734

(z) Masses truncate, black below, pale above

Bloxamia 3: 734

2. Masses setose at margin; basidia short, fasciculate

Colletotrichum 3: 735

II. Conidia aristate with a branched awn at apex

Pestalozziella 3: 737

Phaeosporae

3: 749, 10: 471, 11: 571, 14: 1018, 16: 1008, 18: 469

Conidia dark, 1-celled, globose to oblong or fusoid

I. Conidia solitary on the basidia1. Conidia globose or oblong **Melanconium 3:749**

2. Conidia fusoid, often arcuate

a. Basidia not swollen at base **Cryptomela 3:760**b. Basidia swollen at base **Basiascum 10:474****II. Conidia in chains**1. Conidial chains separate **Trullula 3:731**2. Conidial chains in a mucose head **Thyrsidium 3:761****Hyalodidymae**

3: 766, 10: 475, 11: 572, 14: 1020, 16: 1009, 18: 472

Conidia hyaline or nearly so, 1-septate, ovoid to fusoid

I. Conidia muticate1. Saprogenous, on stems and fruits **Septomyxa 3:766**2. Biogenous, typically on leaves **Marsonia 3:767****II. Conidia 3-4-ciliate at each end****Gloeosporiella 11:575****Phaeodidymae**

3: 763, 10: 475, 11: 572, 14: 1029, 16: 1009

Conidia dark, 1-septate, ovoid to fusoid

I. Conidia solitary1. Conidia muticate **Didymosporium 3:763**2. Conidia 1-3-ciliate at apex **Neobarclaya 14:46, 10:475****II. Conidia catenate, connected by hyaline isthmi****Bullaria 3:766****Hyalophragmiae**

3: 801, 10: 480, 11: 575, 14: 1022, 16: 1012, 18: 474

Conidia hyaline, 2-several-septate, oblong to fusoid or clavate

I. Conidia separate

1. Conidia muticate

a. Conidia oblong or fusoid, masses usually pale

Septogloeum 3:801b. Conidia long-clavate; masses dark **Rhopalidium 3:801**

2. Conidia 1-several-ciliate, usually at the apex

Pestalozzina 11:580**II. Conidia united at base into a radiate or stellate group****Prosthemiella 3:803**(incl. **Psammia 10:498**)**Phaeophragmiae**

3: 771, 10: 480, 11: 575, 14: 1022, 16: 1012, 18: 475

Conidia dark, at least in part, 2-several-septate, oblong to cylindric

I. Conidia muticate

1. Conidia separate, not in chains

a. Conidia oblong or elongate

(1) Conidia curved-attenuate, i. e., hyaline-rostrate

(a) Conidia dark, except the hyaline beak

Scolecosporium 3:782

(b) Conidia with 2 inner cells opaque, others clear

Toxosporium 14:1030

(2) Conidia oblong, not rostrate

(a) Conidia cirrhose protruded and atro-inquant

Stilbospora 3:771

(b) Conidia not protruded and atro-inquant

Coryneum 3:774

b. Conidia stellate-lobed, lobes several-septate

Asterosporium 3:782

2. Conidia in chains

a. Conidia connected by filiform isthmi

Siridium 3:782

b. Conidia chains without isthmi

Siridiella 11:580(incl. *Septotrullula* 18:487)

II. Conidia ciliate

1. Conidia ciliate at apex alone

a. Conidia 1-ciliate

Monochaetia 18:485

b. Conidia several-ciliate

Pestalozzia 3:784

2. Conidia 1-ciliate at each end

Hyaloceras 3:783(incl. *Amphichaeta* 18:486)**Phaeodictyae**

3:803, 10:508, 11:565, 14:1035, 16:1022, 18:488

Conidia dark, muriform, ovoid or oblong

I. Conidia muticate

1. Conidia not catenate

Steganosporium 3:803

2. Conidia catenate by cylindric isthmi

Phragmotrichum 3:806

II. Conidia pluriciliate at apex; end cells subhyaline

Morinia 10:508**Scolecosporae**

3:737, 10:498, 11:582, 14:1031, 16:1018, 18:488

Conidia cylindric, filiform or suballantoid, hyaline, mostly continuous

I. Conidia allantoid

Naemospora 3:746

II. Conidia bacillar to filiform

1. Conidia fasciculate at the apex of the basidia

Trichodytes 14:1031

2. Conidia solitary

a. Masses white or pale, foliicole; conidia filiform

Cylindrosporium 3:737, 18:491

b. Masses gray or dark, usually ramicole; conidia falcate

Cryptosporium 3:740

- c. Masses bright-colored, saprophytic; conidia falcate

Libertella 3:744

Staurosporae

18:493

Conidia star-shaped, hyaline

- I. Masses phyllogenous, bright-colored; conidia 4-radiate

Astroconium 18:493

Order 18. MONILIALES (Hyphomyceteae Sacc. 4:1)

Hyphae more or less developed, cobwebby or more or less compacted, but rarely arising from a definite stratum or stroma, never enclosed in a pycnidium, typically superficial.

Family 75. MONILIACEAE (Mucedineae 4:2)

Hyphae hyaline or bright-colored, more or less fragile, lax, not cohering in fascicles; conidia concolorous, i. e., hyaline or bright-colored.

Hyalosporae

4:2, 10:510, 11:586, 14:1037, 16:1023, 18:495

Conidia hyaline, or bright-colored, 1-celled, globose, ovoid to short-cylindric

Micronemeae

Hyphae very short or obsolete, or little different from the conidia

- I. Conidia not in chains

1. Conidia solitary, at least not capitate

- a. Saprogenous

- (1) Hyphae none

- (a) Conidia separate

Chromosporium 4:6

- (b) Conidia joined in twos or threes, not catenate

Selenotila 11:587

- (2) Hyphae very short, branched, septate

Coccospora 4:9

- b. Entomogenous

Massospora 4:10

(incl. **Sorospora 10:512**)

- c. Phytogenous

- (1) In fungi

- (a) Conidia ovoid, smooth

Myceliophthora 11:587

- (b) Conidia globose, verrucose

Coccosporella 11:586

- (2) In leaves

- (a) Hyphae paliform, stipate, very short

Microstroma 4:9

- (b) Hyphae vermiform-tortuose; biophilous

Ophiocladium 11:587

2. Conidia capitate; hyphae lacking; biophilous

Glomerularia 4:10

II. Conidia in chains

1. Saprophilous

a. Conidial chains arising in the hyphae

(1) Conidial branches simple, arcuate **Malbranchea 4: 11**

(2) Conidial branches dichotomous, not arcuate

Glycophila 4: 11

b. Chains arising at the apex of the hyphae

(1) Conidia globose, elliptic or fusiform

(a) Hyphae short, simple or nearly so

x. Conidia globose or suboblong **Oospora 4: 11**y. Conidia fusoid, acute each way **Fusidium 4: 25**

(b) Hyphae longer, distinctly branched

Monilia 4: 31(incl. *Halobysus* 11: 588)

(2) Conidia bacillar or cuboid

(a) Hyphae nearly obsolete; conidia bacillar

Cylindrium 4: 36

(b) Hyphae distinctly present

x. Conidia bacillar

Polyscytalum 4: 38

y. Conidia cuboid

Geotrichum 4: 39

2. Biophilous

a. Growing within leaf tissue

Oidiopsis 18: 507

b. Growing on leaves or other parts

(1) Conidia ellipsoid, without isthmi **Oidium 4: 40**

(2) Conidia globose, connected by isthmi

Paepalopsis 4: 47**Macronemeae**

Hyphae elongate and distinct from the conidia

I. Conidia in heads

Cephalosporiae

1. Conidia not catenulate

a. Conidia globose or oblong

(1) Conidia sessile on the head or nearly so

(a) Fertile hyphae inflated at apex

x. Apical vesicle globose-inflated

(x) Conidia sessile, not mucus-covered

m. Vesicle verrucose or muriculate

(m) Fertile hyphae simple **Oedocephalum 4: 47**

(n) Fertile hyphae sigmoid, much branched

Sigmoideomyces 10: 523

n. Vesicle hexagonally areolate

Rhopalomyces 4: 50

(y) Conidia on stalks, mucus-covered

Gliocephalus 16: 1031

y. Vesicle clavate or lobed

(x) Vesicle disk-shaped, stellate-lobed

Coronella 4: 51

- (y) Vesicle clavate or subpalmate **Buseella 18: 509**
- (b) Fertile hyphae not inflated at apex
 - x. Conidial head covered with mucus
 - (x) Fertile hyphae simple **Hyalopus 4: 51**
 - (y) Fertile hyphae with verticillate branches at tip **Gliobotrys 18: 510**
 - y. Head without mucus
 - (x) Fertile hyphae with one head
 - m. Conidia not separating **Papulospora 4: 58**
 - n. Conidia separating
 - (m) Head elongate **Doratomyces 4: 53**
 - (n) Head globose or slightly clavate
 - r. Sterile hyphae scanty **Haplotrichum 4: 53**
 - s. Sterile hyphae long, decumbent **Cephalosporium 4: 56**
 - (y) Fertile hyphae with 2-several heads
 - m. Conidia upright on verticillate basidia **Coemansiella 4: 55**
 - n. Conidia in more definite heads
 - (m) Fertile hyphae simple, with 3-several heads of conidia on spines **Botryosporium 4: 54**
 - (n) Fertile hyphae several times 2-3-fid **Trichoderma 4: 59**
- (2) Conidia borne on little stalks or sterigmata
 - (a) Fertile hyphae simple **Corethropsis 4: 62**
 - (b) Fertile hyphae verticillate branched **Spicularia 4: 63**
- b. Conidia short cylindric
 - (1) Conidia without mucus **Cylindrocephalum 4: 63**
 - (2) Conidia covered with mucus **Acontium 18: 512**
- 2. Conidia catenulate **Aspergillae**
 - a. Fertile hyphae inflated at apex
 - (1) Fertile hyphae simple or nearly so
 - (a) Sterigmata of apical vesicle none or simple
 - x. Conidia terminal on sterigmata **Aspergillus 4: 64**
 - y. Conidia lateral and terminal on sterigmata **Dimargaris 4: 76**
 - (b) Sterigmata verticillate branched **Sterigmatocystis 4: 71**
(incl. **Alliospora 18: 516**)
 - (2) Fertile hyphae dichotomous, branches curved **Dispira 4: 77**
 - b. Fertile hyphae little or not at all inflated
 - (1) Fertile hyphae verticillately branched at tip
 - (a) Tips equally verticillate; conidia doliform **Amblyosporium 4: 77**
 - (b) Tips unequally verticillate; conidia globoid

- x. Conidia without mucus **Penicillium 4:78**
(incl. *Citromyces* 11:593)
 - y. Conidia enclosed in mucus **Gliocladium 4:84**
 - (2) Fertile hyphae not verticillate at tip
Briarea 4:85
- II. Conidia borne irregularly on simple or branched but not inflated or verticillate hyphae **Botrytidae**
 - i. Conidia smooth or scarcely roughened
 - a. Saprogenous
 - (1) Conidia typically pleurogenous
 - (a) Fertile hyphae 2-several-furcate **Haplaria 4:85**
 - (b) Fertile hyphae simple or nearly so
 - x. Conidia globose or ellipsoid **Acladium 4:87**
 - y. Conidia short cylindric **Cylindrotrichum 4:88**
 - (2) Conidia acrogenous or pleurogenous
 - (a) Some intermediate joints of the hyphae swollen and denticulate conidia-bearing **Physospora 4:88**
 - (b) Intermediate joints equal
 - x. Conidia-bearing hyphae of two sorts, the upright alone denticulate **Blastomyces 10:529**
 - y. Conidia-bearing hyphae of one sort
 - (x) Fertile hyphae simple or nearly so
 - m. Hyphae not denticulate; conidia solitary
 - (m) Hyphae forming a crust-like stratum **Hyphoderma 4:89**
 - (n) Hyphae loose, cobwebby **Acremonium 4:89**
(incl. *Thermomyces* 18:524)
 - n. Hyphae denticulate; conidia usually grouped
 - (m) Hyphae everywhere denticulate, bearing conidia only at tip **Xenopus 18:524**
 - (n) Hyphae denticulate or proliferous at tip alone
 - r. Apex denticulate, many-spored **Rhinotrichum 4:91**
 - s. Apex inflated-ampulliform, 1-spored **Olpitrichum 11:594**
 - (y) Fertile hyphae branched
 - m. Conidia globose to ovoid
 - (m) Both sterile and fertile hyphae procumbent
 - r. Sterile hyphae intracellular **Hartigiella 16:1031**
 - s. Sterile hyphae superficial
 - (r) Fertile hyphae vaguely branched
 - h. Conidia acro-pleurogenous **Sporotrichum 4:96**
(incl. *Leiosepium* 16:1036)
 - i. Conidia on a one-sided sympodium **Monopodium 10:544**

- (s) Fertile hyphae dichotomous; conidia acrogenous on spine-like branches **Langloisula** 10: 535
- (n) Fertile hyphae erect or ascending
- r. Conidia solitary acrogenous
- (r) Fertile hyphae spiny-branched at apex
Plectothrix 18: 525
- (s) Fertile hyphae not spiny-branched
Monosporium 4: 113
(incl. *Allescheriella* 14: 1075)
- s. Conidia loosely grouped about the apex
- (r) Conidia not involved in mucus
- h. Conidia on inflated muriculate apices
Phymatotrichum 16: 1033
- i. Apices not muriculate or inflated
Botrytis 4: 116
- (s) Conidia involved in mucus
Tolypomyria 4: 137
- n. Conidia fusoid to cylindric
- (m) Fertile hyphae mostly procumbent
Sporotrichella 10: 534
- (n) Fertile hyphae erect or ascending
- r. Conidia fusoid on the upper side of curved branches
Martensella 4: 138
- s. Conidia acrogenous
- (r) Conidia-bearing branches terete
Cylindrophora 4: 138
- (s) Conidia-bearing branches ellipsoid
Cylindrodendrum 4: 139
- b. Biogenous
- (1) Conidia smooth, solitary, more rarely subcatenate
Ovularia 4: 139
(incl. *Ovulariopsis* 16: 1036)
- (2) Conidia densely spiny
Ramulaspera 18: 532
- 2. Conidia muricate or tuberculose-stellate
- a. Conidia globose
- (1) Conidia merely muricate
- (a) Hyphae loose, cobwebby **Sepedonium** 4: 146
- (b) Hyphae woven into a subgelatinous pellicle
Pellicularia 4: 149
- (2) Conidia setose at apex as well as muricate
Chaetoconidium 10: 544
- b. Conidia tuberculose-stellate
Asterophora 4: 148
- III. Conidia acrogenous on verticillate branches
Verticilliae
- 1. Conidia solitary or loosely grouped, not in chains

- a. Conidia-bearing branches very short, ampulliform
Pachybasium 4: 149
 - b. Conidia-bearing branches terete or longer
 - (1) Conidia globose to ovoid
 - (a) Tips of branches clavate, in twos rectangularly
Verticillioopsis 11: 600
 - (b) Tips of branches normal
 - x. Conidia conglutinate into a stratum
Corymbomyces 18: 533
 - y. Conidia not conglutinate
 - (x) Conidia separating readily from the tips
Verticillium 4: 150
 - (y) Conidia separating with difficulty from the tips
Cladobotryum 4: 160
 - (2) Conidia cylindric or elongate
 - (a) Conidia-bearing branches or sporophores 1-spored
 - x. Sporophores straight
Acrocylindrium 4: 161
 - y. Sporophores uncinatè
Uncigera 4: 162
 - (b) Sporophores several-spored
 - x. Sporophore inflated verrucose at apex
Calcarisporium 4: 162
 - y. Sporophore incurved, with seriate conidia below
Coemansia 4: 162
 - 2. Conidia capitate or densely spicate, not in chains
 - a. Conidia sessile
 - (1) Conidia capitate, involved in mucus
 - (a) Fertile hyphae smooth
Acrostalagmus 4: 163
(incl. *Harziella* 16: 1037)
 - (b) Fertile hyphae asperate
Gloeosphaera 18: 535
 - (2) Conidia densely spirally spicate at apices
Clonostachys 4: 165
 - b. Conidia on small stalks
Sceptromyces 4: 166
 - 3. Conidia in chains
Spicaria 4: 166
(incl. *Nomuraea* 18: 533)
- IV. Joints of the hyphae inflated here and there and bearing pleurogenous conidia
Gonatobotrytae
- 1. Joints smooth
 - a. Conidia catenulate
Gonatorrhodum 4: 169
 - b. Conidia solitary
Nematogonium 4: 170
 - 2. Joints muricate or punctate
 - a. Conidia solitary
Gonatobotrys 4: 168
 - b. Conidia catenulate, forming a spheric head
Gonatorrhodiella 10: 548
- Hyalodidymae**
4: 176, 10: 548, 11: 600, 14: 1057, 16: 1038, 18: 539
Conidia hyaline or bright-colored, 1-septate, ovoid oblong or short fusoid

I. Conidia not in chains

1. Saprophilus

a. Conidia smooth

(1) Fertile hyphae simple or nearly so

(a) Hyphae inflated at apex or joints

x. Hyphae denticulate inflated at apex; conidia fusoid

Diplorhinotrichum 18: 540

y. Hyphae inflated at both apex and joints

Arthrobotrys 4: 181

(b) Hyphae not inflated

x. Conidia spirally pleurogenous

Haplariopsis 18: 539

y. Conidia solitary acrogenous or capitate

(x) Conidia capitate at apex

Cephalothecium 4: 180

(y) Conidia solitary at apex

m. Fertile hyphae long

Trichothecium 4: 178

n. Fertile hyphae very short

Didymopsis 4: 182

(2) Fertile hyphae branched

(a) Fertile hyphae irregularly branched

Diplosporium 4: 178

(b) Fertile hyphae verticillate or dichotomous

x. Fertile hyphae verticillate

Diplocladium 4: 176

y. Fertile hyphae dichotomous; sterigmata subternate

Cylindrocladium 11: 600

b. Conidia echinulate; conidial cells unequal

Mycogone 4: 183

2. Biophilous

a. Conidia obliquely beaked

Rhynchosporium 18: 540

b. Conidia not beaked

(1) Hyphae mostly simple, not spirally twisted

Didymaria 4: 184

(2) Hyphae simple, spirally twisted

Bostrichonema 4: 185

II. Conidia catenulate

1. Fertile hyphae simple, short

Hormiactis 4: 186

2. Fertile hyphae verticillately branched

Didymocladium 4: 186**Hyalophragmiae**

4: 188, 10: 551, 11: 601, 14: 1059, 16: 1041, 18: 544

Conidia hyaline or bright-colored, 2-several-septate, oblong, fusoid or elongate

Micronemeae

Fertile hyphae very short and little different from the conidia

I. Conidia in chains, cylindric or oblong

Septocylindrium 4: 223

II. Conidia not in chains

1. Sporophore 3-celled, upper cell much inflated

Milowia 4: 222

2. Sporophore not inflated, sometimes obsolete

- a. Conidia ciliate at apex and upper septum
Mastigosporium 4: 220
- b. Conidia not ciliate
 - (1) Hyphae lacking; conidia not aggregate
Fusoma 4: 220
 - (2) Hyphae distinct; conidia aggregate
 - (a) Conidia in mucose glomerules
Rotaea 4: 222
 - (b) Conidia in fascicles, not mucose
Paraspora 4: 222

Macronemeae

Fertile hyphae manifest and distinct from the conidia

- I. Saprophilous
 - 1. Conidia solitary or at least not capitate
 - a. Fertile hyphae simple
 - (1) Sterile hyphae lacking
Dactylella 4: 193
 - (2) Sterile hyphae abundant
Monacrosporium 4: 193
 - b. Fertile hyphae branched
 - (1) Hyphae verticillately branched
Dactylium 4: 188
 - (2) Hyphae irregularly branched
Blastotrichum 4: 191
 - 2. Conidia capitate
 - a. Fertile hyphae vesiculose at tip; fimicole
Cephaliphora 18: 544
 - b. Fertile hyphae not swollen
 - (1) Hyphae simple; sterile lacking
Dactylaria 4: 194
 - (2) Hyphae verticillate; sterile hyphae present
Mucrosporium 4: 190

II. Biophilous

- 1. Conidia mucose-conglobate, allantoid, often continuous
Allantospora 14: 1043
- 2. Conidia not mucose-conglobate
 - a. Conidia ciliate at apex
***Trichoconis 18: 545**
 - b. Conidia not ciliate
 - (1) Conidia ovate-cylindric or elongate, often catenate
Ramularia 4: 196
 - (2) Conidia obclavate-piriform
Piricularia 4: 217
 - (3) Conidia long vermiform
Cercospora 4: 218

Hyalodictyae

11: 608, 18: 561

Conidia hyaline, or bright-colored, muriform, ovoid to globose or cubic

- I. Hyphae much branched; conidia elliptic or globose, cells uniform
Stemphyliopsis 18: 561
- II. Hyphae little branched; conidia six-lobed and sarciniform, central cell larger, colored, lobes hyaline
Synthetospora 11: 608

Staurosporae

4: 230, 10: 567, 11: 608, 14: 1067, 16: 1049, 18: 559

Conidia hyaline or bright-colored, stellate, radiate or forked, septate or continuous

- I. Hyphae lacking; conidia trident-shaped **Tridentaria 4: 231**
- II. Hyphae present
 - 1. Conidia globose to cylindric, permanently attached to 2-3 divergent sterigmata **Tetracladium 14: 1067**
 - 2. Conidia themselves stellate or radiate
 - a. Conidia bilobate-forked; lobes parallel, contiguous **Pedilospora 18: 559**
 - b. Conidia narrowly digitate **Prismaria 4: 230**
 - c. Conidia 3-4-radiate
 - (1) Conidia ciliate at the apex **Titaea 4: 231**
 - (2) Conidia muticate
 - (a) Conidia 3-radiate **Trinacrium 4: 231**
 - (b) Conidia 4-radiate
 - x. Fertile hyphae very short, simple **Tetracium 18: 560**
 - y. Fertile hyphae branched **Lemonniera 14: 1067**

Helicosporae

4: 233, 10: 568, 11: 608

Conidia hyaline or bright-colored, spirally curved, cylindric

- I. Hyphae very short; conidia spiral **Helicomycetes 4: 233**
- II. Hyphae various; conidia spirally twisted into a conic or ovate tube **Helicoum 11: 609**

Family 76. DEMATIACEAE

Hyphae dark or black, cobwebby, loose, usually rigid, not cohering in definite fascicles; conidia typically dark and concolorous, but sometimes the hyphae are dark and conidia clear, or the conidia dark and the hyphae clear. This family is parallel with the Moniliaceae and certain intermediate forms must be sought in both places.

Amerosporae

2: 235, 10: 569, 11: 610, 14: 1068, 16: 1059, 18: 563

Conidia dark, or sometimes hyaline but the hyphae then dark, 1-celled, globose to oblong.

Micronemeae

Hyphae very short or scarcely different from the conidia.

- I. Conidia not in chains
 - 1. Conidia globose to elliptic
 - a. Sterile hyphae nearly obsolete **Coniosporium 4: 238**
 - b. Sterile hyphae elongate **Cordella 10: 586**
 - 2. Conidia elongate, usually fusoid **Fusella 4: 246**
- II. Conidia in chains
 - 1. Conidia of two sorts, larger catenate, smaller glomerate **Heterobotrys 4: 267**
 - 2. Conidia all alike

- a. Hyphae dark
 - (1) Chains breaking up readily
 - (a) Conidia globose or ovoid **Torula 4: 247**
 - (b) Conidia clavate **Gongromeriza 4: 263**
 - (2) Chains breaking up with difficulty
 - (a) Chains curved **Gyroceras 4: 266**
 - (b) Chains straight or nearly so **Hormiscium 4: 263**
 - b. Hyphae hyaline **Torulina 18: 566**
- III. Conidia in heads or racemes; conidia usually piriform
Echinobotryum 4: 278

Macronemeae

Hyphae manifest and distinct from the conidia

I. Conidia dark, rarely subhyaline

i. Conidia not in chains

a. Conidia capitate

- (1) Fertile hyphae simple, but often with short apical branches
 - (a) Hyphae with apical branches or basidia
 - x. Biophilous **Periconiella 4: 275**
 - y. Saprophilous
 - (x) Apex with heterogeneous basidia
 - m. Apex swollen; basidia 3-4 **Haplobasidium 10: 578**
 - n. Apex not swollen; basidia many **Stachybotrys 4: 269**
 - (y) Apex short-branched, rarely simple
 - m. Apex short-branched or simple
 - (m) Apex not swollen **Periconia 4: 270**
 - (n) Apex swollen **Stachybotryella 18: 570**
 - n. Apex capitate-branched; branches 2-3-furcate and spine-bearing **Cephalotrichum 4: 275**
 - (b) Hyphae without apical branches or basidia
 - x. Conidia globose **Trichobotrys 18: 571**
 - y. Conidia boat-shaped curved; hyphae dark-ringed **Camptoum 4: 276**
 - z. Conidia fusoid, sometimes subhyaline **Acrotheca 4: 276**
- (2) Fertile hyphae branched below the apex
 - (a) Hyphae forked below apex; conidia oblong **Synsporium 4: 278**
 - (b) Hyphae repeatedly dichotomous; conidia globose or elliptic **Dicyma 18: 570**

b. Conidia verticillate-pleurogenous

- (1) Hyphae dark nodose-inflated; conidia ovoid **Gonatobotryum 4: 278**
- (2) Hyphae hyaline, dark-ringed
 - (a) Conidia globose-angulose **Goniosporium 4: 280**
 - (b) Conidia fusoid **Arthrimum 4: 279**

c. Conidia inserted irregularly

(1) Hyphae loose, typically saprogenous

(a) Hyphae vesiculose-inflated here and there

x. Conidia-bearing vesicles pleurogenous

Oedemium 4: 297

y. Conidia-bearing vesicles acrogenous

Cystophora 4: 298

(b) Hyphae not vesiculose-inflated

x. Fertile hyphae erect

(x) Branches circinate at apex; conidia mesogenous, muricate

Acrospira 4: 282, 14: 1056

(y) Branches spirally twisted; conidia exogenous

Streptothrix 4: 282

(z) Hyphae simple or with straight branches

Virgaria 4: 280

y. All hyphae more or less creeping

(x) Branches curved or lash-like

Campsotrichum 4: 295

(y) Branches not curved

m. Conidia spiny, rarely smooth

Zygodesmus 4: 283

n. Conidia smooth

(m) Conidia sessile

Trichosporium 4: 288

(n) Conidia on stalks or basidia

r. Conidia on tooth-like sterigmata

Rhinocladium 4: 295

s. Conidia on jar-like basidia

Basisporium 18: 533

(2) Hyphae forming a crust, biogenous

Glenospora 4: 298

d. Conidia solitary, acrogenous

(1) Fertile hyphae simple

(a) Sterile hyphae lacking

x. Fertile hyphae short and fascicled at base

Hadrotichum 4: 301

y. Fertile hyphae longer, separate

Monotospora 4: 299

(b) Sterile hyphae present

x. Conidia with a loose hyaline membrane

†Phaeoconis 18: 571**(Nigrospora)**

y. Conidia without a membrane

(x) Conidia with a large shining gutta

Sporoglena 14: 1074

(y) Conidia without a shining gutta

Acremoniella 4: 302**(incl. Cordella 10: 586)**

- (2) Hyphae branched; conidium at first enclosed in a vesicle from which it escapes at the apex **Conioscypha 18: 572**
2. Conidia in chains
- a. Sterile hyphae all creeping or obsolete
- (1) Conidia of two kinds; larger catenulate fuscous, smaller internal catenulate cylindric hyaline **Thielaviopsis 11: 612**
- (2) Conidia all alike
- (a) Conidia produced in the hyphae **Sporendonema 10: 515**
- (b) Conidia produced on the hyphae
- x. Fertile hyphae spirally twisted, forming a head of conidia
Helicocephalum 10: 512
- y. Fertile hyphae not twisted
- (x) Fertile hyphae simple, not branched at tip
- m. Chains of conidia lateral **Dematium 4: 308**
- n. Chains terminal
- (m) Conidia without isthmi **Catenularia 4: 303**
- (n) Conidia connected by cylindric isthmi
Prophytroma 4: 309
- (y) Fertile hyphae branched
- m. Hyphae dendroid **Hormodendrum 4: 310**
- n. Hyphae capitate branched at tip
Haplographium 4: 304
- b. Some sterile hyphae erect and mixed with the fertile
Hormiactella 4: 311
- II. Conidia hyaline or subhyaline
1. Conidia acrogenous on short heteromorphic basidia at the lower part or at the base of erect hyphae
- a. Conidia capitate glomerate
- (1) Sterile hyphae simple and circinate at apex
Bolacotricha 4: 316
- (2) Sterile hyphae much branched below
Myxotrichum 4: 317
- b. Conidia not capitate
- (1) Conidia solitary
- (a) Eruptant; conidia fusoid, usually setose
Ellisiella 4: 315
- (b) Superficial
- x. Sterile hyphae simple
- (x) Conidia globose **Botryotrichum 4: 313**
- (y) Conidia bacillar
- m. Sterile hyphae tortuous **Sarcopodium 4: 312**
- n. Sterile hyphae circinate at apex
Helicotrichum 4: 313
- y. Sterile hyphae branched
- (x) Hyphae irregularly branched; basidia verticillate
Costantinella 16: 1054
- (y) Hyphae repeatedly dichotomous

- m. Branches continuous; basidia terete, basal
Circinotrichum 4: 314
 - n. Branches septate; basidia ampulliform, above base
Ceratocladium 4: 315
 - (2) Conidia loosely catenate; conidia basilar, ovoid
Stirochaete 4: 316
 - 2. Conidia on hyphae of the same kind
 - a. Conidia solitary, neither catenate or capitate
 - (1) Hyphae erect, simple
 - (a) Hyphae with a single lateral basidium near base
Zygosporium 4: 328
 - (b) Hyphae with pleurogenous conidia
Chloridium 4: 320
 - (2) Hyphae branched
 - (a) Hyphae erect, smooth
 - x. Hyphae verticillate branched
Verticicladium 4: 327
 - y. Hyphae more or less irregularly branched
 - (x) Conidia ovoid
Mesobotrys 4: 324
 - (y) Conidia cylindric
Chaetopsis 4: 324
 - (z) Conidia falcate, sometimes ciliate
Menispora 4: 325
 - (b) Hyphae somewhat decumbent, more or less spiny
 - x. Hyphae nodose-spiny here and there
Gonytrichum 4: 329
 - y. Hyphae spiny but not swollen
Cladorrhinum 4: 330
 - b. Conidia capitate
 - (1) Hyphae simple, with basidia only at the tip
 - (a) Conidia globose
 - x. Basidia verticillate
Fuckelina 4: 330
 - y. Basidia irregular
Pimina 16: 1054
 - (b) Conidia ovoid, mucose
Scopularia 4: 330
 - (2) Hyphae more or less verticillate branched
Stachylidium 4: 331
 - c. Conidia catenate, arising within the hyphae
 - (1) Conidia in simple chains
Chalara 4: 333
 - (2) Conidia conglutinate into a long curl
Cirromyces 18: 627
- Didymosporae**
- 4: 341, 10: 595, 11: 616, 14: 1077, 16: 1056, 18: 575
- Conidia 1-celled, dark, more rarely hyaline, ovoid to oblong
- Micronemeae**
- Hyphae very short or scarcely different from the conidia.
- I. Conidia not in chains
 - 1. Hyphae lacking
Dicoccum 4: 342
 - 2. Hyphae present, circinate
Cycloconium 4: 343
 - II. Conidia in chains
Bispora 4: 343

Macronemeae

Hyphae distinctly different from the conidia

I. Conidia smooth, muticate**1. Conidia not capitate****a. Conidia more or less catenulate at first**

- (1) Hyphae and conidia biform, the latter 1-celled dark or continuous hyaline
Epochnium 4: 375

(2) Hyphae and conidia uniform

- (a) Hyphae here and there inflated **Cladotrichum 4: 370**
(b) Hyphae not inflated

x. Hyphae erect; conidia long-catenate

Diplococcium 4: 374

- y. Hyphae somewhat decumbent; conidia short-catenate or finally solitary
Cladosporium 4: 350

b. Conidia not catenate**(1) Hyphae beautifully flexuose-torulose**

Polythrincium 4: 350

(2) Hyphae not torulose or flexuose**(a) Hyphae inflated at tip, branched**

Pseudobeltrania 18: 578

(b) Hyphae not inflated, usually short and little branched**x. Conidia merely acrogenous**

Fusicladium 4: 345

(incl. *Passalora* 4: 344)

y. Conidia acro-pleurogenous

Scolecotrichum 4: 347

2. Conidia capitate

Cordana 4: 376

II. Conidia muriculate or ciliate**1. Conidia muriculate**

Trichocladium 4: 376

2. Conidia ciliate at apex; fertile and sterile hyphae intermixed

Beltrania 4: 377

Phragmosporae

4: 380, 10: 606, 11: 621, 14: 1082, 16: 1060, 18: 581

Conidia 2-several-septate, dark, rarely hyaline, ovoid to cylindric or vermicular

Micronemeae

Fertile hyphae very short or little different from the conidia

I. Conidia not in chains**1. Conidia muticate****a. Conidia united at base, fasciculate, cylindric**

Cryptocoryneum 4: 395

b. Conidia separate**(1) Conidia ovoid to cylindric****(a) Saprogenous**

Clasterosporium 4: 382

(b) Phyllogenous

Stigmina 4: 394

(2) Conidia fusoid-falcate

Fusariella 4: 395

2. Conidia cuspidate or setose

- a. Hyphae dichotomous and broadened at apex
Urosporium 4:397
- b. Hyphae not dichotomous or broadened
Ceratophorum 4:395

II. Conidia in chains

- 1. Conidia not connected by isthmi
Septonema 4:397
- 2. Conidia connected by isthmi
Polydesmus 4:401

Macronemeae

Fertile hyphae distinctly different from the conidia

I. Conidia solitary or nearly so, acrogenous for the most part

- 1. Conidia muticate
 - a. Conidia echinulate
Heterosporium 4:480
 - b. Conidia smooth
 - (1) Biophilous
 - (a) Hyphae creeping, radiate
Ophiotrichum 10:617
 - (b) Hyphae ascending or erect
 - x. Conidia ovoid to oblong
Napicladium 4:481
(incl. **Cercosporidium 18:594**)
 - y. Conidia filiform or vermicular
Cercospora 4:431
 - (2) Saprophilous
 - (a) Hyphae rigid; conidia ovoid to elongate
 - x. Conidia ovoid
Brachysporium 4:423
 - y. Conidia elongate
Helminthosporium 4:402
 - (b) Hyphae flexuous, pannose
Drepanospora 4:430
- 2. Conidia 1-3-ciliate at apex
Camposporium 4:482

II. Conidia verticillate or capitate

- 1. Hyphae dark
 - a. Conidia acrogenous, forming a head
 - (1) Hyphae simple
Acrothecium 4:483
 - (2) Hyphae branched at the apex
Atractina 18:584
 - b. Conidia pleurogenous, somewhat verticillate
 - (1) Hyphae rostrate and naked at apex
Rhynchomyces 18:584
 - (2) Hyphae not rostrate at apex
Spondylocadium 4:482
- 2. Hyphae hyaline or bright-colored, apex denticulate
Neomichelia 18:593

III. Conidia catenate as a rule

- 1. Conidia arising from the interior of the hyphae
Sporoschisma 4:486
- 2. Conidia arising from the apex, sometimes solitary
Dendryphium 4:487

Dictyosporae

4:496, 10:665, 11:632, 14:1090, 16:1075, 18:612

Conidia dark, rarely hyaline, muriform, globose to oblong

Micronemeae

Hyphae very short or scarcely different from the conidia

- I. Conidia not in chains
 - 1. Conidia muticate
 - a. Conidia irregularly muriform or sarciniform
 - (1) Conidia with a conic point at each side
Oncopodium 18: 616
 - (2) Conidia muticate
 - (a) Conidia globose to oblong
 - x. Conidia ovoid to oblong, loose **Sporodesmium 4: 497**
 - y. Conidia globose to ovoid, aggregated
Stigmella 4: 507
 - (b) Conidia sarciniform, often coalescent
Coniothecium 4: 508
 - b. Conidia as if composed of parallel chains of cells
 - (1) Chains of conidia never separating
Dictyosporium 4: 513
 - (2) Chains of conidia separating
Spira 4: 514
 - 2. Conidia corniculate at apex **Tetraploa 4: 516**
- II. Conidia in chains, often asperate or with isthmi
Sirodesmium 4: 516

Macronemeae

Hyphae distinctly different from the conidia

- I. Conidia of the same form
 - 1. Conidia not in chains or capitate
 - a. Conidia bearing little conidia on their surface
Xenosporium 18: 612
 - b. Conidia normal
 - (1) Hyphae alike
 - (a) Conidia cruciate-divided, verrucose
†Tetracocco sporis 18: 617
(Tetracocco sporium)
 - (b) Conidia muriform, typically smooth
 - x. Hyphae decumbent **Stemphylium 4: 519**
 - y. Hyphae erect or ascending
 - (x) Conidia globose, pleurogenous
 - m. Conidia around the apex of the hyphae
Cocco sporium 4: 542
 - n. Conidia conglobate around the base
Trichae gum 4: 542
 - (y) Conidia ovoid to oblong, mostly acrogenous
Macro sporium 4: 523
(incl. Mystro sporium 4: 539)
 - (2) Hyphae of two kinds, longer sterile, shorter fertile
Septo sporium 4: 543
Dactylo sporium 4: 545
 - 2. Conidia capitate

3. Conidia catenate

- a. Hyphae velvety, erect, subsimple; conidia caudate

Alternaria 4: 545

- b. Hyphae crustose, various; conidia 2-celled; conidia-like ganglia sarciniform

Fumago 4: 547

II. Conidia of two forms, dark sarciniform and subhyaline falcate

Sarcinella 4: 548**Staurosporae**

4: 552, 11: 639, 14: 1107, 16: 1181, 18: 625

Conidia forked or stellate, usually dark, septate or continuous

I. Conidia of two forms, small fusoid hyaline, large lobate many-celled, brown

Desmidiospora 10: 568

II. Conidia alike

1. Fertile hyphae present; conidia 3-4-radiate

Triposporium 4: 554

2. Fertile hyphae lacking

- a. Conidia on a cellular stroma, 2-4-digitate

Chiomyces 4: 554

- b. Cellular stroma lacking

- (1) Conidia 3-several-radiate; xylogenous

Ceratosporium 4: 552

- (2) Conidia 2-radiate; phyllogenous

Hirudinaria 4: 553**Scolecosporae**

Conidia long-filiform or vermicular

One genus

Cercospora 4: 431, 14: 1099**Helicosporae**

4: 557, 10: 680, 11: 638, 14: 1107, 16: 1081, 18: 624

Conidia cylindric, spiral or convolute, typically septate, dark or hyaline

I. Hyphae obsolete

Helicopsis 10: 680

II. Hyphae present

1. Conidia septate transversely

Helicosporium 4: 557

2. Conidia muriform

Helicoma 11: 638**Family 77. STILBACEAE**

Sterile hyphae creeping, scanty; fertile hyphae collected into stalk-like or stroma-like fascicles bearing conidia at the top, more rarely along the side, pale, bright-colored or dark.

Hyalostilbae

Hyphae and conidia pale or bright-colored, not dark or black

Amerosporae

4: 561, 10: 681, 11: 640, 14: 1107, 16: 1082, 18: 630

Conidia globose, elliptic or oblong, 1-celled, hyaline or pale, or bright-colored

I. Conidial part distinctly capitate or at least terminal

1. Conidia not in chains
 - a. Head of conidia not gaping or splitting above
 - (1) Head not spiny
 - (a) Conidiophores of head normal
 - x. Conidia covered with mucus
 - (x) *Synnema* monocephalous
 - m. Conidiophores dendroid-verticillate
 - (m) Without distinct sterigmata
***Dendrostilbella* 18: 635**
 - (n) With obpiriform sterigmata
***Pirobasidium* 18: 638**
 - n. Conidiophores not dendroid-verticillate
***Stilbum* 4: 564**
 - (y) *Synnema* polycephalous
 - m. Capitula on extremely short branches
***Polycephalum* 4: 575**
 - n. Capitula on spreading subulate branches
***Tilachlidium* 4: 576**
 - o. Capitula on erect branches
***Corallodendrum* 4: 576**
 - y. Conidia without mucus
 - (x) *Synnema* monocephalous
 - m. Conidiophores spirally twisted
***Martindalia* 4: 578**
 - n. Conidiophores more or less straight
 - (m) Conidia rhombic or biconic
***Rhombostilbella* 18: 636**
 - (n) Conidia globose to fusoid
***Ciliciopodium* 4: 577**
(incl. *Clavularia* 10: 686)
 - (y) *Synnema* polycephalous
 - m. Terrestrial, large, 1-2 cm.; conidia ovoid
***Macrostilbum* 16: 1083**
 - n. Small, not terrestrial; conidia elongate-ovate
***Chondromyces* 4: 576**
 - (b) Conidiophores conidium-like, septate; monocephalous
***Atractiella* 4: 578**
 - (2) Head spiny with radiating spicules
 - (a) Spicules conic, granulate
***Actiniceps* 4: 579**
 - (b) Spicules with many curved branches at middle
***Heterocephalum* 18: 642**
 - b. Head of conidia persistent below, splitting above
***Pilacre* 4: 579**
2. Conidia in chains
 - a. *Synnema* with conidia above; conidia without mucus
 - (1) *Synnema* not pubescent
***Coremium* 4: 581**
(incl. *Pritzeliella* 18: 644)
 - (2) *Synnema* pubescent
***Lasioderma* 4: 584**
 - b. *Synnema* with conidia below; conidia with mucus
***Microspatha* 10: 687**

- II. Conidial part cylindric or long-clavate
 - 1. Conidia more or less equally scattered
 - a. Biophilous; sterigmata denticulate branched **Cladosterigma 11: 640**
 - b. Saprophilous; sterigmata none or simple **Isaria 4: 584**
 - 2. Conidia in lateral heads or racemes
 - a. Conidia in racemes; synnema lobate **Peribotryum 4: 595**
 - b. Conidia in heads
 - (1) Conidiophores with lateral nodes, usually escaping through the stomata **Helostroma 18: 630**
 - (2) Conidiophores without nodes, usually entomophilous **Gibellula 11: 643**

Didymosporae

18: 645

Conidia 2-celled, hyaline, globose to oblong

- I. Synnema cylindric, fimbriate at apex; conidia oblong **Didymobotryopsis 18: 645**
- II. Synnema capitate; conidia fusoid **Didymostilbe 18: 645**

Phragmosporae

4: 598, 10: 691, 14: 1109, 18: 646

Conidia 2-several-septate, hyaline, oblong to bacillar

- I. Conidia solitary
 - 1. Conidia bacillar, aristate above, separating at joints **Stilbomyces 14: 1109**
 - 2. Conidia not aristate or separating
 - a. Conidia oblong **Arthrosporium 4: 598**
 - b. Conidia elongate-falcate **Atractium 4: 599**
- II. Conidia catenate, cylindric **Symphyosira 4: 600**

Helicosporae

18: 658

Conidia filiform, spirally twisted

- I. Synnema erect, setose **Helicostilbe 18: 657**

Phaeostilbae

Hyphae and conidia or one or the other dark

Amerosporae

4: 603, 10: 692, 11: 643, 14: 1109, 16: 1086, 18: 648

Conidia 1-celled, dark, globose to elongate

- I. Conidia not in chains
 - 1. Synnema setose **Saccardaea 11: 643**
 - 2. Synnema naked
 - a. Conidia asperate, on minute basidia **Basidiella 10: 698**

b. Conidia smooth

(1) Synnema carnose, racemose-branched

Stilbothamnium 14: 1110

(2) Synnema fibrous or corneous, not racemose

(a) Basidia lageniform

Ceratocladium 18: 649

(b) Basidia lacking, at least not lageniform

x. Synnema stalked, fibrous

(x) Conidia dark, globose to elliptic

Sporocybe 4: 604

(y) Conidia hyaline

m. Conidia ovoid to oblong

Graphium 4: 609

n. Conidia elongate or falcate

Harpographium 4: 619

y. Synnema sessile, corneous

Glutinium 4: 620

II. Conidia in chains

1. Synnema setose

Trichurus 14: 1112

2. Synnema not setose

a. Stalk scopulate branched above

Stemmaria 10: 696

b. Stalk simple or nearly so

(1) Capitule loose

(a) Base of synnema subequal; usually on stems

Stysanus 4: 620

(b) Base of synnema perithecioid; usually on leaves

Graphiothecium 4: 624

(2) Capitule compact

(a) Conidia globose

x. Conidia echinulate

Harpocephalum 14: 1111

y. Conidia smooth

(x) Conidia pleurogenous

Heydenia 4: 625

(y) Conidia acrogenous

Briosia 10: 698

(b) Conidia ovoid to oblong

Antromycopsis 14: 1113**Didymosporae**

4: 626, 10: 699, 18: 654

Conidia 1-septate, dark or hyaline, oblong to cylindric

I. Conidia muticate

Didymobotryum 4: 626

II. Conidia 1-ciliate at apex

Hoehneliella 18: 654**Phragmosporae**

4: 627, 10: 699, 11: 644, 14: 1113, 16: 1089, 18: 655

Conidia 2-several-septate, dark or hyaline, oblong to cylindric

I. Conidia capitate

1. Synnema simple

a. Synnema black; conidia densely capitate

Arthrobotryum 4: 628

b. Synnema fuscous or pale; conidia loosely capitate

Isariopsis 4: 630

2. Synnema dendroid branched

Xylocladium 16: 1089

II. Conidia not capitate

1. Conidia catenulate

Dendrographium 11: 644

2. Conidia not catenulate

a. Stalk fibrous

(1) Synnema simple or branched; conidia acro-pleurogenous

Podosporium 4: 627

(2) Synnema branched; conidia acrogenous

Negeriella 14: 1114

b. Stalk parenchyma-like

(1) Conidia pleurogenous, on a disk

Riccoa 18: 656

(2) Conidia acrogenous

Podosporella 11: 644**Dictyosporae**

4: 632

Conidia muriform, dark or hyaline, oblong

I. Synnema stalked, capitate

Sclerographium 4: 632**Staurosporae**

I. Conidia of 4-5-radiate cells, hyaline

Riessia 4: 627**Family 78. TUBERCULARIACEAE**

Hyphae compacted into a globose, discoid or verruciform body or sporodochium; sporodochia typically sessile, waxy or subgelatinous, white, bright-colored or dark to black.

Mucedinae

Hyphae and conidia white or bright-colored

Amerosporae

4: 635, 10: 700, 11: 645, 14: 1115, 16: 1090, 18: 658

Conidia hyaline or bright-colored, 1-celled, globose to fusoid

I. Sporodochia smooth or nearly so

1. Conidiophores normal

a. Conidia muticate

(1) Conidia not covered with mucus

(a) Conidia not acrogenous capitate

x. Sporodochium girt by a heterogeneous cup

Patellina 4: 677

y. Sporodochium without a heterogeneous cup

(x) Conidia not catenate or scarcely so

m. Conidia escaping from interior of hyphae

(m) Conidiophores branched **Endoconidium 10: 708**(n) Conidiophores simple **Trichotheca 10: 714**

n. Conidia arising on outside of hyphae

(m) Conidiophores lacking

r. Conidia large, pellucid

(r) Conidia globose

Sphaerosporium 4: 664

(s) Conidia oval

Diaphanium 4: 672

s. Conidia small, not pellucid

Pactilia 4: 672

- (n) Conidiophores present
 - r. Conidia pleurogenous or acro-pleurogenous
 - (r) Conidia globose **Beniowskia** 16: 1091
 - (s) Conidia ovoid to oblong
Tubercularia 4: 638
 - (t) Conidia fusoid to cylindric
Fusicolla 4: 664
 - s. Conidia acrogenous
 - (r) Conidiophores verrucose
Dacrymycella 4: 671
 - (s) Conidiophores not verrucose
 - h. Uredinicole **Tuberculina** 4: 653
 - i. Not uredinicole
 - (h) Sporodochia globose
 - + . Conidia globose; conidiophores short
Aegerita 4: 661
 - . Conidia ovoid; conidiophores branched
Granularia 4: 649
 - (i) Sporodochia pulvinate
 - + . Conidia acicular
Kmetia 16: 1158
 - . Conidia terete-oblong
Bactridiopsis 18: 662
 - (j) Sporodochia disk-shaped, or cupulate
 - + . Sporodochia disk-shaped
Hymenula 4: 667
(**Hymenella** 16: 1105)
 - . Sporodochia cupulate
Hyphostereum 11: 649
 - (k) Sporodochia verruciform or effuse
 - + . Conidiophores simple
 - (+) Conidiophores radiate, united at base
Climoconidium 16: 1093
 - (—) Conidiophores not united or radiate
Sphacelia 4: 666
 - . Conidiophores dendroid branched
Dendrodochium 4: 650
 - (y) Conidia in chains
 - m. Conidia covered with mucus
Collodoichium 18: 661
 - n. Conidia without mucus
 - (m) Conidia globose
 - r. Conidia hyaline **Sphaerocolla** 11: 648
 - s. Conidia blue **Sporoderma** 4: 676
 - (n) Conidia elliptic to oblong
 - r. Sporodochium disk-shaped, orange-red
Necator 16: 1094
 - s. Sporodochium subglobose, whitish
Patouillardia 4: 677

- (o) Conidia cylindric
 - r. Sporodochium dilated above, stalked
 - Bizzozzeriella** 10: 716
 - s. Sporodochia globose to verruciform
 - (r) Sporodochia gelatinous, sessile
 - Cylindrocolla** 4: 673
 - (s) Sporodochia not gelatinous, short-stalked
 - Sphaeridium** 4: 675
 - (b) Conidia acrogenous capitate; sporodochia turbinate
 - Cephalodochium** 4: 678
 - (2) Conidia covered with mucus
 - (a) Sporodochium globose, hardened
 - Thecospora** 4: 679
 - (b) Sporodochia verruciform or discoid, gelatinous or waxy
 - x. Sporodochia verruciform or subeffuse
 - Illosporium** 4: 656
 - (incl. **Myxonema** 10: 714)
 - y. Sporodochia discoid
 - Epidochiopsis** 11: 648
 - b. Conidia ciliate
 - (1) Conidia 1-ciliate at base only
 - Stigmatella** 4: 679
 - (2) Conidia ciliate at both ends
 - (a) Conidia 1-ciliate at each end
 - Thozetia** 4: 679
 - (b) Conidia 7-8-ciliate at each end
 - Chaetospermum** 10: 706
 - 2. Conidiophores with internal conidia-bearing areoles
 - Scoriomyces** 4: 680
 - II. Sporodochia setulose, ciliate or uniformly woolly
 - 1. Sporodochia woolly or setulose
 - a. Sporodochia setulose; conidia catenate
 - Periola** 4: 681
 - b. Sporodochia woolly or velvety; conidia capitate
 - (1) Conidia globose
 - Dacryodochium** 14: 1122
 - (2) Conidia oblong
 - Lachnodochium** 14: 1122
 - 2. Sporodochia ciliate at the margin
 - a. Sporophores none; conidia coacervate
 - Volutellaria** 4: 682
 - b. Sporophores distinct
 - (1) Conidia in chains
 - Volutina** 18: 667
 - (2) Conidia not in chains
 - (a) Conidiophores 6-ciliate above, united below
 - Guelichia** 10: 720
 - (b) Conidiophores not ciliate or united
 - Volutella** 4: 682
- Didymosporae**
4: 690, 10: 721, 18: 668
- Conidia 1-septate, hyaline or bright-colored
- I. Conidia in chains
 - 1. Sporodochia setulose
 - Endodesmia** 4: 691
 - 2. Sporodochia smooth
 - Gymnodochium** 18: 668

II. Conidia not in chains

- | | |
|-------------------------|---------------------------------|
| 1. Sporodochia setulose | Leptotrichum 4: 690 |
| 2. Sporodochia smooth | |
| a. Conidia verrucose | Cosmariospora 4: 690 |
| b. Conidia smooth | Patouillardiella 10: 721 |

Phragmosporae

4: 691, 10: 721, 11: 649, 14: 1123, 16: 1097, 18: 669

Conidia 2-several-septate, hyaline or bright-colored, fusoid to falcate (in *Fusarium* sometimes short and simple).I. Conidia somewhat catenate, cylindric **Discocolla** 11: 653

II. Conidia rarely catenate

- | | |
|--|---------------------------------|
| 1. Conidia cruciately 4-celled; sporodochium gelatinous | Sarcinodochium 18: 677 |
| 2. Conidia not cruciate | |
| a. Conidiophores short, simple | |
| (1) Conidia very large, terete-oblong | Bactridium 4: 691 |
| (2) Conidia doliiform | Pithomyces 4: 693 |
| b. Conidiophores more or less branched | |
| (1) Conidiophores dichotomous; conidia key-like | Heliscus 4: 693 |
| (2) Conidiophores usually verticillately branched; conidia usually falcate, sometimes oblong | |
| (a) Sporodochium gelatinous | Pionnotes 4: 725 |
| (b) Sporodochium waxy or byssoid | Fusarium 4: 694 |
| | (incl. Microcera 4: 727) |

Dictyosporae

18: 676

Conidia muriform, hyaline, subglobose

I. Sporodochia globose **Sporocystis** 18: 676**Staurosporae**

4: 728, 16: 1104, 18: 677

Conidia forked or cruciate, hyaline or bright-colored

I. Conidiophores simple; conidia horseshoe-like

Lituarina 4: 728

II. Conidiophores branched

- | | |
|---|-----------------------------|
| 1. Conidia with short irregular branches or lobes | Aegeritopsis 18: 677 |
| 2. Conidia forked or cruciate | |
| a. Conidia 2-forked, septate | Dicranidium 4: 728 |
| b. Conidia 3-forked or subcruciate, continuous | Triglyphium 4: 728 |

Helicosporae

4: 729, 10: 732, 11: 653, 18: 678

Conidia spirally convolute

- I. Conidiophores lacking **Everhartia 4: 729**
- II. Conidiophores present
1. Conidia continuous **Troposporium 4: 729**
2. Conidia septate **Hobsonia 11: 653**

Dematiace

Hyphae olive, to brown or black; conidia concolorous, rarely hyaline

Amerosporae

4: 736, 10: 732, 11: 654, 14: 1129, 16: 1104, 18: 678

Conidia 1-celled, globose to elongate, sometimes unequal

- I. Conidia not in chains
1. Sporodochia not setose
- a. Conidiophores lacking
- (1) Lichenicole **Spilomium 18: 678**
- (2) Not lichenicole
- (a) Sporodochia gelatinous; conidia globose, vesiculose **Myriophysa 4: 742**
- (b) Sporodochia not gelatinous
- x. Sporodochia hemispheric, with a stratum of conidia **Spermodermia 4: 742**
- y. Sporodochia disk-like, applanate **Sclerodiscus 10: 735**
- b. Conidiophores present
- (1) Sporodochia thick, tremelloid **Epidochium 4: 747**
- (2) Sporodochia not tremelloid
- (a) Conidiophores with a slender apical appendage; conidia globose **Bonplandiella 10: 732**
- (b) Conidiophores not appendaged
- x. Conidia globose
- (x) Sporodochia cellular, uniform **Epicoccum 4: 736**
- (y) Sporodochia of three hyphal layers **Triplicaria 10: 734**
- y. Conidia ovoid to bacillar
- (x) Conidiophores bacillar; sporodochia subdiscoid **Hymenopsis 4: 744**
- (y) Conidiophores branched
- m. No brown radiate hyphae at base **Strumella 4: 742**
- n. Brown radiate hyphae at base **Astrodochilum 14: 1117**
2. Sporodochia ciliate or with exserted hyphae
- a. Sporodochia with loose exserted conidiophores, verruciform **Trichostroma 4: 752**
- b. Sporodochia margined with hairs or setae
- (1) Setae dark **Chaetostroma 4: 749**
- (2) Setae or hairs white **Myrothecium 4: 750**

II. Conidia in chains

1. Conidiophores lacking **Exosporina** 18: 684
2. Conidiophores present
 - a. Sporodochium tremelloid ***Hormodochis** 4: 749
 - b. Sporodochium not tremelloid
 - (1) Sporodochium ciliate ***Chaetodochis** 4: 750
 - (2) Sporodochium not ciliate
 - (a) Sporodochia globose **Sphaeromyces** 4: 753
 - (b) Sporodochia stellate **Actinomma** 4: 753

Didymosporae

4: 754, 10: 737, 16: 1105, 18: 684

Conidia 1-septate, typically dark, elliptic to fusoid

- I. Sporodochia lichenicole, globose **Sclerococcum** 4: 754
- II. Sporodochia not lichenicole
 1. Sporodochia foliicole
 - a. Sporodochia annuliform ateroid **Hyphaster** 18: 685
 - b. Sporodochia subglobose **Pucciniopsis** 10: 737
 2. Sporodochia lignicole **Epiclinium** 4: 754

Phragmosporae

4: 755, 10: 738, 11: 656, 14: 1131, 16: 1106, 18: 685

Conidia 2-several-septate, usually colored, oblong to cylindric

- I. Conidia in chains; sporodochium discoid **Trimmatostroma** 4: 757
- II. Conidia not in chains
 1. Conidia 1-ciliate at each end **Ciliofusarium** 11: 656
 2. Conidia muticate
 - a. Sporodochium hairy **Excipularia** 18: 688, 3: 689
 - b. Sporodochium smooth
 - (1) Conidia laterally proliferate and joined in bundles **Amallospora** 14: 1131
 - (2) Conidia not proliferate and united
 - (a) Sporodochia convex-pulvinate **Exosporium** 4: 755
 - (b) Sporodochia vertically cylindric or clavate **Listeromyces** 18: 685

Dictyosporae

4: 758, 10: 739, 11: 656, 14: 1131, 16: 1107, 18: 689

Conidia muriform, usually dark

- I. Conidia in chains **Bonordeniella** 18: 689
- II. Conidia not in chains
 1. Sporodochia setulose **Chaetostromella** 11: 656
 2. Sporodochia smooth **Spegazzinia** 4: 758

Scolecosporae

18: 689

Conidia filiform, hyaline

- I. Sporodochia globose, setulose **Schizotrichum** 18: 688

Staurosporae

4: 753

Conidia angulose-stellate, hyaline

- I. Sporodochia scutellate, pilose

Stephanoma 4: 753**Helicosporae**

11: 654

Conidia spirally twisted, smoky

- I. Sporodochia pulvinate

Tropospora 11: 654**Sterile Mycelia**

14: 1138, 16: 1108, 18: 690

Conidia permanently absent so far as known

- I. Parasitic on algae

Lepraria, Pulveraria, etc. Z. 239

- II. Not parasitic on algae

1. Tubercle-like

- a. Tubercles connected with fibrils

Rhizoctonia 14: 1175**(Coccobotrys 16: 1108)**

- b. Tubercles without fibrils

- (1) Cortex discrete

Acinula 14: 1174

- (2) Cortex not discrete

Sclerotium 14: 1139

2. Maculiform; black stromata in leaves and stems

Ectostroma 14: 1177

3. Root-like

- a. Filaments rigid, broad, terete or depressed, dark, white within

Rhizomorpha 14: 1180

- b. Filaments rigid, capilliform, dark, closely adhering

Capillaria 14: 1184

4. Clavariform; filaments terete, vertical, simple or branched

Anthina 14: 1184

5. Cobwebby or byssoid

- a. Cespitose interwoven, primary hyphae joined in bundles

Ozonium 14: 1187

- b. Cespitose interwoven, hyphae not fasciculate, black

Rhacodium 14: 1189

- c. Cobwebby, soft, fleeting, white or pale

Hypha 14: 1192

- d. Addressed, creeping, dendritic, white to brownish, not forming a continuous membrane

Himantia 14: 1194

6. Membrane-like; densely interwoven, forming a continuous suberose or coriaceous membrane

Xylostroma 14: 1197

7. Deformed, discolored corky cells of plants

Phloeconis 14: 1197

Key to Spore Sections

- Amerosporae: spores one-celled, not stellate or spiral
 - Allantosporae: spores sausage-shaped, mostly clear
 - Hyalosporae: spores hyaline or clear, globose to oblong
 - Phaeosporae: spores dark, yellow, brown or black, globose to oblong
- Leucosporae: spores clear, rarely faintly colored
 - Rhodosporeae: spores rose-colored
 - Ochrosporeae: spores yellow to yellow-brown
 - Melanosporae: spores dark purple to black
- Didymosporae: spores 1-septate or 2-celled
 - Hyalodidymae: spores hyaline, 2-celled
 - Phaeodidymae: spores dark, 2-celled
- Phragmosporae: spores few-many-transeptate, 3-many-celled
 - Hyalophragmiae: spores hyaline, 3-many-celled
 - Phaeophragmiae: spores dark, 3-many-celled
- Dictyosporae: spores septate crosswise and lengthwise, i. e., muriform
 - Hyalodictyae: spores hyaline, muriform
 - Phaeodictyae: spores dark, muriform
- Scolecosporae: spores needle-shaped to filiform, continuous or septate
 - Hyaloscoleciae: spores hyaline, filiform
 - Phaeoscoleciae: spores dark, filiform
- Staurosporae: spores stellate or radiate, hyaline or dark, continuous or septate
- Helicosporae: spores spirally twisted, hyaline or dark, continuous or septate

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Glossary of Latin and English Terms

A

a, without (in comp.)

ab, from

abbreviatus, shortened

abeuns, deviating

abhorreo, abhor, differ from

abiegnus, fir

abietinus, fir

abnormis, abnormal

abortivus, abortive

abortus, aborted

abrupte, abruptly

abundans, abundant

abunde, abundantly

ac, and

acaudatus, without a tail

accedo, to approach

accessory, additional

accipio, to accept

acerinus, maple

acervulatus, heaped, massed

acervulus, **i**, **m.**, a little heap

acervus, **i**, **m.**, a heap

achromaticus, without color

achrous, colorless

acicularis, acicular, needle-shaped

acidulus, slightly acid

acies, **ei**, **f.**, edge

acotyledon, **nis**, **m.**, cryptogam

acquirō, to acquire

acrogenus, **acrogenous**, borne at tip

acropleurogenus, borne at the tip and
on the sides

acris, sharp

aculeatus, spiny, pointed

aculeolatus, spiny, pointed

acuminatus, long-pointed

acus, **us**, **f.**, needle

acutatus, acute

acutiusculus, somewhat acute

acutus, acute

ad, to

adesse, to be present

adhibitus, used, applied

adhuc, as yet, hitherto

adinterim, meanwhile

admiro, to look, wonder at

admodum, at least, fully, very

adnatus, **adnate**, touching broadly

adparenter, apparently

adproximatus, drawn near

adscendens, ascending

adsociatus, clustered

adspectus, **us**, **m.**, sight, appearance

adultus, fully grown

adustus, burned, blackened

aecidiiformis, **aecidium**-shaped

aecium, a cluster cup

aegre, poorly, with difficulty

aemulans, rivalling

aemulus, similar

aeneus, brazen, coppery

aequalis, equal

aequans, equalling

aequidistans, equally distant

aerius, aerial

aerobius, growing in the air

aerophilus, aerial

aeruginosus, copper-colored

aeternus, eternal

affectus, affected

affixus, attached

afflatus, swollen

agamicus, asexual

agamus, asexual

ager, **ri**, **m.**, field

agglomeratus, heaped together

aggregatus, grouped together

albicans, whitening

albidus, white

albofartus, white-stuffed

albolutescens, whitish yellow

albus, white

alcoholicus, alcoholic

alienus, foreign, strange

aliquantisper, for a while

- aliquantulus, somewhat, a little
 alius, another, other
 alius,—alius, some—others
 allantoid, sausage-shaped, short and curved
 allantoideus, a, um, allantoid, sausage-shaped
 alliaceus, a, um, of an onion
 alpis, mountain
 alte, deeply
 alternus, a, um, alternate
 altitudo, f., height
 altus, a, um, high
 alutaceus, grayish yellow
 alveolatus, a, um, with hollows
 amaricans, making bitter, irritating
 ambiens, surrounding
 ambitus, m., periphery
 amentum, n., catkin
 amerosporus, a, um, with one-celled spores
 amethysteus, a, um, amethyst-colored
 amissus, a, um, lost, dismissed
 ammoniacalis, e, like ammonia
 amnis, is, m., a brook
 amoebiformis, e, amoeba-form
 amoeboid, amoeba-like
 amoeboideus, a, um, amoeba-like
 amoene, beautifully
 amoenus, a, um, beautiful, pleasant
 amoveo, to withdraw
 amphibius, a, um, amphibial
 amphigenus, a, um, borne on both sides
 amplexens, clasping
 amplexo, to wind or clasp
 amplus, a, um, broad, ample
 ampulliformis, ampulliform, cushion-like
 amycelicus, without mycelium
 amygdalinus, almond-like, pink
 analogus, similar
 anastomosans, anastomosing, running together
 anceps, cipitis, two-headed, double
 androgynus, with male and female
 angularis, angular
 angulosus, angulose, angular
 angustatus, narrowed
 angustus, narrow
 animalcula, ae, f., little animal
 annularis, ring-like
 annulatum, in a ring
 annulatus, annulate, with a ring, ringed
 annuliform, ring-like
 annulus, i, m., a ring
 annuosus, aged, old
 anormaliter, abnormally
 anserinus, of or pertaining to geese
 ante, before
 antecedens, preceding
 antheridiiformis, antheridium-like
 antheridium, ii, m., antherid
 antherozoidium, ii, n., antherozoid
 antice, in front
 aparaphysatus, without paraphyses
 apertus, open
 aperio, to open, uncover
 apex, icis, m., tip
 apiculatus, apiculate, with a point
 apiculiformis, like a little point
 apophysatus, with a supporting cell
 apothecium, ii, n., cup or disk containing asci
 appendicula, ae, f., little appendage
 appendiculatus, appendiculate, appendaged
 appendix, icis, f., appendage
 applanatus, applanate, flattened
 approximatus, close, near
 apricus, wild
 apud, at
 apus, odis, without a stalk
 aquaeductus, us, m., aqueduct
 aquaticus, aquatic
 aquosus, watery
 arachnoideus, cobwebby
 araneosus, cobwebby
 arbor, is, f., tree
 arbusculiformis, shrub-like
 arcte, closely
 arcticus, arctic
 arcuatim, bow-like, curved
 arcuatus, arcuate, bow-like
 area, ae, f., space
 areola, ae, f., little space
 areolatus, areolate, marked by areas or spaces
 arescens, drying
 aresco, to become dry

argenteus, silvery
 argentinus, silvery
 argillaceus, clay-color
 aridus, dry
 arista, ae, f., awn
 aristatus, aristate, awned
 arrectus, upright, stiff
 arrhizus, without roots
 articulatus, jointed
 articulus, i, m., joint
 asciger, ascus-bearing
 ascogenic, producing asci
 ascoma, atis, n., spore-fruit, ascus-bearing body
 ascophorus, ascus-bearing
 ascus, i, m., sac
 asiaticus, Asiatic
 asper, rough
 asperatus, asperate, roughened
 aspergo, to scatter, sprinkle
 asperulus, slightly roughened
 asser, eris, m., branch, beam, post
 assurgens, ascending
 asterigmaticus, without stalks
 asterineus, star-like, radiate
 asteroid, star-like, radiate
 asteroma-like, with radiate subicle
 astomus, mouthless
 astromatoideus, without a stroma
 asymmetricus, irregular
 ater, dark, black
 atomatus, with small particles
 atomisticus, tiny
 atque, also
 atrans, blackening
 atratus, dark
 atro-fuscus, dark
 atro-inquinans, blackening
 atro-nitidus, black and shining
 atropiceus, black as pitch
 atropurpureus, dark purple
 attenuatus, tapering
 attingens, touching
 attolens, raising
 atypicus, abnormal
 auctio, onis, f., growth
 auctor, is, comm., author
 auctus, enlarged
 audeo, to dare
 augmentum, i, n., increase, growth

aurantiaceus, orange, golden
 aurantinus, orange
 auratus, golden
 aureus, golden
 auriformis, ear-shaped
 australis, southern
 aut, or
 autem, moreover
 authenticus, authentic
 autumnus, autumn
 avulsus, torn off, separated
 axicola, growing on the axis
 axiformis, axis-like
 axilaris, axillary
 azonus, without zones
 azygospore, a zygospore formed without conjugation

B

bacca, ae, f., berry
 baccatus, berry-like
 bacillaris, bacillar, rod-shaped
 bacteriformis, bacterium-like
 bactrosporus, with rod-shaped spores
 baculum, i, n., rod
 badius, brown
 basidiosporus, with spores borne on stalks
 basidium, ii, n., rod, basidium
 basilaris, basal
 basis, is, f., base
 bene, plainly, well
 benevole, kindly
 betulicola, growing on birch
 betulinus, birchen
 bi-, two, twice
 bibulus, absorbing
 biclavuligerus, bearing two club-shaped branches
 biconic, conic at each end
 biconvexus, biconvex
 bicornus, with two horns, two-branched
 bicorticus, with two barks
 bidentatus, two-toothed
 bifidus, split into two parts
 biformis, or -us, of two forms
 bifrons, on both sides of the leaf
 bifurcatus, two-forked

biguttulatus, with two globules or vacuoles
bilabellulatus, two-lipped
bilabiatus, two-lipped
bilobus, two-lobed
bilocularis, two-celled
binatim, by twos
binucleolatus, with two oil-drops
binus, two-fold
biogenus, biogenous, growing on organisms
biophilus, biophilous, growing on organisms
bipunctatus, with two vacuoles
bis, twice
biscociformis, biscuit-shaped
biserialis, in two rows
biseriatus, in two rows
bisporus, two-spored
bitunicatus, with two walls
biuncinatus, two-hooked
bombardus, cannon-like
borealis, northern
botryosus, botryose, clustered like grapes
botuliformis, botuliform, sausage-shaped
brachiatus, with arms
bractea, *ae, f.*, bract
brevicollis, short-necked
brevis, short
breviter, shortly
breviusculus, somewhat short
brunneolus, brownish
brunneus, brown
bullae, *ae, f.*, bubble
bullula, *ae, f.*, a little swelling
byssinus, cottony
byssisedus, byssisede, seated on cotton
byssoides, byssoid, cottony
byssus, *i, f.*, cotton

C

caerulescens, turning blue
caesius, bluish-grey
caespes, *itis, m.*, tuft
caespitosus, cespitose, in tufts
caesus, fallen
calamus, *i, m.*, stem

calcareus, of lime, calcareous
calcariferus, bearing lime
calcifer, bearing lime
calidarium, *ii, n.*, hot-house
callosus, roughened
calvescens, becoming bare
calvitium, *ii, n.*, bald spot
calvus, bare, bald, not pubescent
calx, *calcis, f.*, lime
calyciformis, cup-shaped
calycicola, living on the calyx
calycularis, cup-shaped
calyptra, *ae, f.*, cap
calyx, *ycis, m.*, calyx, cup
campanulatus, bell-shaped
campaniformis, bell-shaped
campylotropus, curved
canaliculatus, canaliculate, channeled
candicans, growing white
cannabinus, of hemp
canus, hoary
capillaris, hair-like
capillatura, *ae, f.*, mass of hair
capilliform, hair-like
capillitium, *ii, n.*, mass of threads
capillus, *i, m.*, hair
capitatus, capitate, in heads
capitulatus, borne in little heads
capitulum, *i, n.*, a little head
capreolus, *i, m.*, goat
caprinus, of or pertaining to goats
capsula, *ae, f.*, capsule
caput, *itis, n.*, head
carbo, *onis, m.*, carbon, charcoal
carbonaceus, like coal
carbonicola, on burned-over ground or on charcoal
carbonous, like coal or carbon
carens, lacking
caries, *ei, f.*, decay
carinatus, keeled
cariosus, decaying
carneus, flesh-colored
carnosus, carnosous, fleshy
caro, *carnis, f.*, flesh
carpogenus, living on fruit
carpogonium, *ii, n.*, carpogone
cartilagineus, cartilaginous, tough but pliable
caryopsis, *idis, f.*, grain

castaneus, chestnut brown
catenate, in chains
catenifer, chain-bearing
catenigerus, bearing chains
catenula, *ae, f.*, chain
catenulatus, catenulate, in chains
catenuliformis, chain-like
catenulus, *m., -a, f.*, a small chain
caterva, *ae, f.*, heap, crowd
catervatim, in heaps, in groups
cauda, *ae, f.*, tail
caudatus, caudate, tailed
caudex, *icis, m.*, stalk
caudicula, *ae, f.*, a little stalk
caulicola, growing on stems
caulis, *is, m.*, stem
caulogenus, on stems
caverna, *ae, f.*, a cavern, hollow
cavernosus, with hollows
cavernula, *ae, f.*, a little cavity
cavitas, *atis, f.*, cavity
cavitatus, hollow
cavus, *i, m.*, hollow
celans, hiding
cella, *ae, f.*, a cell
celluliformis, cell-shaped
cellulosus, cellular
censeo, to think, estimate
centrifugus, centrifugal
centrum, *i, n.*, the centre
cephalodium ii, *n.*, a globose to club-shaped projection on a lichen thallus
ceraceus, waxy
cerebriformis, brain-like
cereus, waxy
cerno, to perceive, separate
cernuus, nodding, inclined
cerumen, *inis, n.*, wax
cervinus, tawny
cespitose, clustered, crowded
ceterum, remaining
chalybeus, of steel
character, *eris, m.*, character, style
charta, *ae, f.*, paper
chartaceus, papery
chlamydosporicus, with chlamydo-spores
chlorinus, greenish
chlorophyllous, green, with chlorophyll

chorda, *ae, f.*, twine, a cord
cibaria, *ae, f.*, food
cicatrix, *icis, f.*, a scar
ciliatulus, slightly ciliate
ciliatus, ciliate, with long hairs on the margin
ciliolatus, ciliolate, with cilia
cincinnatus, curled
cinctus, surrounded
cinerascens, becoming ashen
cinereus, ashen
cingens, surrounding
cingulatus, surrounded
cingulus, *i, m.*, a little belt
cinnabarinus, orange red
cinnamomeus, cinnamon-colored
circa, near
circinatus, circinate, coiled
circino, to circle
circiter, about
circuitus, *us, m.*, a circuit
circulus, *i, m.*, a circle
circumambiens, encircling
circumdatus, surrounded
circumscissile, splitting circularly
circumscriptus, circumscribed
circumtextus, surrounded
circumvallatus, surrounded
cirratus, curled
cirrhosus, curly
citatus, cited
cito, to name, mention
cito, soon, rather
citriformis, citriform, lemon-shaped
citrinus, lemon yellow
cladodium ii, *n.*, a leaf, branch
clado-genus, borne on branches
clathratus, clathrate, latticed
clausus, closed
clava, *ae, f.*, a club
clavaria-like, club-shaped, or coral-like
clavatus, club-shaped
claviformis, club-shaped
clavis, *is, f.*, a key
clavula, *ae, f.*, a little club
clavulatus, club-shaped
clypeatus, shield-like
clypeus, *i, m.*, a shield

- coacervatus**, coacervate, heaped together
coadunatio, **onis**, **f.**, a summing up
coadunatus, united, collected
coalescens, coalesced, running together
coalitus, joined, running together
coarctatus, crowded
coccineus, bright red
coccus, **i**, **m.**, round cell, berry
cochleariformis, spoon-shaped
cochleatus, ear-like
coctus, cooked
coenobium, **ii**, **n.**, a colony
coerulescens, turning blue
coffeatus, coffee-like
coffeicolor, coffee-colored
coffeiformis, coffee-shaped
cognatus, related
cogo, to act, collect
cohabitans, living together
cchaerens, cohering
collabasco, to fall in
collabens, collapsing, crumbling up
collabent, collapsing, falling in
collapsus, collapsed
collariatus, collared, attached to a collar
collectivus, collected
colliculosus, with tiny elevations
collum, **i**, **n.**, a neck
colonia, **ae**, **f.**, a colony
color, **is**, **m.**, color
coloratio, **onis**, **f.**, coloration, color
coloratus, colored
coloreus, colored
columella, **ae**, **f.**, a small pillar, columella
columnaris, columnar
comatus, shaggy
comestibilis, eatable
commissura, **ae**, **f.**, commissure, path, cleft
commixtus, commingled
communico, to share, communicate
communis, common
comosus, hairy
compactus, dense
compaginatus, united
complectens, comprising, clasping
complecto(r), to clasp
complexus, complex
compositus, composed, compound
compressus, compressed
concatenatus, in chains
concavus, concave
concentricus, concentric
conceptaculum, **i**, **n.**, conceptacle
conchiformis, conchiform, shell-shaped
concolor, concolorous, of like color
concrecens, growing together
concretus, united
condensus, condensed
conditio, **onis**, **f.**, condition
confero, to collect
confertus, crowded
confirmatio, **onis**, **f.**, confirmation
conflatus, swollen
confuens, running together
cnfluo, to merge
conformis, all alike, similar
confundo, to mingle, confuse
congestus, crowded
conglobatus, conglobate, heaped together
conglomeratus, heaped
conglutinat, conglutinate, glued together
congregatus, aggregated
congruo, to agree
conicus, conical
conidium, **ii**, **n.**, an asexual spore
conidial, producing or pertaining to conidia
conidicus, conidial
conidiferus, conidia-bearing
conidiophorum, **i**, **n.**, a hypha bearing conidia, a conidiophore
conjugatio, **onis**, **f.**, conjugation
connatus, connate, joined
connexus, connected
connivens, connivent, approaching
conoideus, conoid, cone-shaped
consortium, **ii**, **n.**, company
conspersgens, sprinkled
conspersus, scattered
conspicuus, conspicuous
conspurcatus, polluted
constipatio, **onis**, **f.**, a crowding

constituens, constituting
consuetudo, inis, f., a habit
consumptus, destroyed
contemno, to condemn, disparage
contextum, i, n., texture, context
contiguus, close
continens, containing
continuus, continuous, one-celled
contortus, twisted
contra, against
contractus, narrowed
contusus, bruised
conus, i, m., a cone
convergens, coming together
convolutus, convolute, coiled
convolutio, onis, f., a fold
copiosus, abundant
coprophilus, growing on dung
copulans, copulating
coralloid, coral-like
coralloideus, coralloid, like much-branched coral
coriaceus, leathery
corneus, corneous, horn-like
corniculatus, corniculate, horned
cerniformis, horn-shaped
cornutus, horned
coronatus, crowned
corpusculum, i, n., a little body
corrugatus, corrugate, ridged
corruptus, corrupted, spoiled
cortex, icis, m., the bark
corticalis, cortical, of bark
corticatus, corticate, with a bark or epiderm
corticola, corticole, growing on bark
cortina, ae, f., veil
cortinate, with a curtain-like veil
corvinus, pertaining to the raven, black
costa, ae, f., ridge
costatus, costate, ridged
crassities, ei, f., thickness
crassitudo, inis, f., thickness, width
crassiusculus, somewhat broad
crassus, broad
crateriformis, crateriform, crater-shaped
creber, crowded
cremicolor, cream-colored

cribrosus, sieve-like
crinitus, hairy, crested
crispulus, somewhat crisp
crispus, crisp
crista, ae, f., crest
cristatus, crested
crocatu, yellow
croceus, yellow
cruciatim, cruciately, cross-like
cruentatus, bloody
crusta, ae, f., crust
crustaceous, crust-like
crustiformis, crust-shaped
crustose, forming a crust, more or less interrupted
crustula, ae, f., a little crust
cubile, is, n., a bed
cuboideus, cuboid, cubical
cucullatus, hooded
cucumeriformis, cucumber-shaped
culmicola, growing on grass-stems
culmus, i, m., culm, a stalk, stem
cultellus, i, m., a small knife
culter, tri, m., a knife
cultriformis, knife-like
cultus, cultivated
cum, with
cumulatus, heaped up
cuneatus, wedge-shaped
cuneiformis, wedge-shaped
cuniculus, i, m., a rabbit
cupreus, coppery
cuprinus, coppery
cupula, ae, f., a little cup
cupularis, **cupulatus**, **cupuliformis**, cup-shaped
curtus, short
curvatus, curved
cuspidatus, cuspidate, with a tooth
cuticula, ae, f., cuticle
cuticularized, with firm cover or cuticle
cutis, is, f., the skin
cyaneus, blue
cyathiformis, cup-like
cyclus, i, m., a cycle
cyldrinceus, cylindricus, cylindrical
cymbiformis, boat-shaped
cyphella, ae, f., an opening or hollow

in a thallus, more or less cup-shaped
 cystidium, ii, n., cyst
 cystophore, the stalk which bears a cell or cyst

D

daedaleus, labyrinthine
 dealbatus, whitened
 debilis, weak
 deciduus, falling
 decies, ten times
 decorticatus, without bark
 decumbens, prostrate
 decurrens, decurrent, running down the stem
 defectus, lacking
 deficiens, lacking
 deficio, to lack
 definitus, definite
 deflexus, deflexed
 deformus, deformed
 degenero, to degenerate
 dehiscens, dehiscent, splitting
 dein, then, at length
 dejectus, fallen
 dejiciens, throwing down
 delicatulus, delicate
 delineatus, figured
 deliquescent, deliquescing, liquefying
 delitescens, hiding
 delitescio, to conceal, lurk
 deltoideus, delta-like, triangular
 dematium-like, black and cobwebby
 dematius, black and cottony
 demonstro, to show
 demum, at length
 dendritice, dendritically, tree-like
 dendriticus, tree-like
 dendroideus, dendroid, tree-like
 denigratus, blackened
 denique, at length
 densus, close, dense
 dentatus, toothed
 denticulatus, denticulate, with little teeth
 denudans, denuding
 denudatus, denuded
 deorsum, downward
 dependens, hanging
 deplanatus, flattened

depressus, depressed
 derumpens, breaking
 descendens, descending
 desciscens, leaving, deserting
 describo, to describe
 descriptus, described
 desicco, to dry up
 desinens, ending, closing
 desum, to fail, be absent
 destitutus, lacking
 destruens, destroying
 detergibilis, removable, breakable
 deustus, burnt
 diametralis, of the diameter
 diametrum, i, n., diameter
 diaphanus, diaphanous, transparent
 diatrype-like, with a stroma different from the tissue of the matrix
 dichotomus, dichotomous, two-forked
 diclinus, with separate sexes
 dictyosporus, spores having cross and longitudinal walls
 didymosporus, with two-celled spores
 didymus, two-fold or two-celled
 differo, to differ
 difficilis, difficult
 diffluens, diffluent, dissolving
 diffractus, broken
 difformis, of two forms
 digestus, broken up
 digitiformis, finger-shaped
 digitaliformis, digitate, finger-like
 digitatus, digitate, having fingers
 dignosco, to differ
 dignotus, to distinguish
 dilabens, breaking apart
 dilatatus, spread out
 dilute, dilutely
 dilutus, dilute
 dimidiatus, dimidiate, two-lobed, halved
 dimidius, half
 dimorphus, of two forms
 dioecious, sex organs on separate plants
 directio, onis, f., direction
 directus, straight
 dirumpens, breaking apart
 disciformis, disc-shaped
 discolorus, discolorous, discolored

discretus, discrete, separate
 discrimen, inis, n., difference
 disculus, i, m., little disc
 disfractus, broken
 disparens, disappearing
 dispergens, scattering
 dispositus, arranged
 disruptus, broken
 disseco, to cut up
 dissectus, cut up
 disseminatus, scattered
 dissentio, to disagree
 dissepimentum, i, n., partition, wall
 distal, distant, further
 distans, remote
 distichus, distichous, in two rows
 distinguo, to distinguish
 diu, long
 divaricatus, spreading
 divergens, diverging
 diversimodus, in different ways
 diversus, diverse, different
 divinans, conjecturing
 divisio, onis, f., a division
 divisus, divided
 doliiformis, doliiform, cask-shaped,
 jar-shaped
 dolium, ii, n., cask, jar
 donacinus, of a reed
 donatus, furnished
 dorsiventral, with two unlike sides
 dorsum, i, n., back
 dothideaceus, like Dothidea, i. e., lo-
 culate
 dubitantur, doubtfully
 dubius, doubtful
 duco, to lead
 ductus, led
 dulcis, sweet
 dumetum, i, n., a thicket
 duo, two
 duodecim, twelve
 duplo, twice
 duriusculus, somewhat hard
 durities, ei, f., hardness
 durus, hard

E

eburneus, ivory-white
 ecaudatus, without a tail
 eccentricus, eccentric, lateral

echinatus, spiny
 echinulatus, echinulate, spiny
 edulis, edible
 effiguratus, shaped, formed
 effoetus, worn out
 efformatus, formed
 effusus, effuse, spread out
 egrediens, growing out
 elasticus, elastic
 elatus, tall
 elevatus, raised
 ellipticus, elliptical
 ellipsoideus, ellipsoid
 elongatus, lengthened
 emarginatus, without a margin
 emergens, emerging
 emergo, to emerge
 emersus, emerging
 emittens, emitting
 emortuus, dead
 enatus, arising from
 endobasidial, continuous with the bas-
 idium
 endobiotic, growing within living
 things
 endochroma, atis, n., colored contents
 endogenus, endogenous, born within
 endoperidium, ii, n., inner peridium
 endophytic, growing in plants
 endoplasma, atis, n., protoplasm
 endoxylus, within wood
 endozoic, growing in animals
 enim, for
 endoparasiticus, internally parasitic
 entomogenus, entomogenous, living
 in insects
 epelliculosus, without a covering or
 pellicle
 epidermis, idis, f., epiderm, the sur-
 face skin
 epigaeus, epigaeae, on the ground
 epigenus, borne above
 epiphloeodus, on the bark
 epiphragma, an upper wall or division
 epiphyllus, on the upper side of the
 leaf
 epiphytic, upon plants
 episporium, ii, n., outer wall of spore
 epithecium, a layer above the asci, usu-
 ally formed of the tips of the paraphy-
 ses

epizoic, growing on animals
 equinus, equine, belonging to horses
 erectus, erect
 ergo, therefore
 erostratus, without a beak
 erostris, without a beak
 erraticus, erratic, wandering
 error, is, m., error
 eructatus, thrown up
 erumpens, bursting out
 erysiploideus, like Erysiphe, cobwebby
 eseptate, without cross walls
 estriatus, without lines or markings
 etiam, also
 etsi, although
 eumorphus, well-formed
 eutype-like, eutypeous, eutypoid, with an effuse stroma similar to the tissue of the matrix
 evacuans, emptying
 evacuatus, emptied
 evado, to escape
 evaginatus, without a sheath
 evanescens, evanescent, disappearing
 evanidus, vanishing
 evidentius, more clearly
 evolutus, developed
 evolvatus, without a volva
 evolvens, developing
 exacte, exactly
 exalbescens, becoming white
 exalbidus, whitish
 exalbugo, to whiten
 exannulatus, without a ring
 exappendiculatus, not appendaged
 exaridus, dried out
 exasperans, roughened
 exasperatus, roughened
 exaspero, to roughen
 excavatio, onis, f., an excavation, hollowing out
 excavatus, hollowed out
 excedens, exceeding
 excentric, out of the centre, lateral
 exone, the outer wall or covering of an apothecium
 excipuliformis, cup-shaped
 excipulum, i, n., exciple, margin
 excrescens, growing out

excutiens, shaking out
 exemplaris, model
 exemplarium, ii, n., specimen, sample
 exemplum, i, n., an example
 exesus, consumed, destroyed
 exhibens, exhibiting
 exigens, scanty
 exiguitas, atis, f., smallness, scantiness
 exiguus, little, small
 exilis, thin, slender
 eximie, exceedingly
 existimo, to estimate
 exitus, us, m., a departure, escape
 exobasidial, separated by a wall from the basidium
 exogenus, arising on the outside
 exoperidium, ii, n., outer peridium
 exoriens, arising
 exosporium, ii, n., exospore, outer wall of the spore
 expallens, becoming pale
 explodens, exploding
 expulsus, expelled
 exquisite, beautifully
 exsertus, exerted, thrust out
 exsiccatio, onis, f., a drying out
 exsiccatus, dried out
 exsiliens, escaping
 exsuccus, without milk or juice
 extensio, onis, f., extension
 externus, external
 extimus, outermost, ultimate
 extra, without, outside
 extrico, to extricate
 extrorsum, toward the edge
 extus, outside

F

fabiformis, bean-shaped
 fabrica, ae, f., texture
 facies, ei, f., face, form
 facilis, easily
 fagineus, beechen
 falcatus, falcate, scythe-shaped, curved
 falciformis, beak-shaped, scythe-shaped
 familia, ae, f., family
 familiola, ae, f., a little family
 farctus, stuffed

farina, ae, f., meal, flour
farinaceus, mealy
fascia, ae, f., fascicle
fasciatus, grouped
fasciculatus, fasciculate, fascicled, in bundles
fastigiatus, bunched
fatiszens, disappearing, breaking up
favosus, hollow
femineus, feminine
fenestratus, with windows or openings
fere, almost
fermentatio, onis, f., fermentation
fermentum, i, n., yeast
ferruginascens, turning rust-colored
ferrugineus, rust-colored
ferrumequinum, i, n., a horse-shoe
ferrum, i, n., iron
fibra, ae, f., a fiber, filament
fibrilla, ae, f., little fibril
fibrillula, ae, f., a little fibril
fibrosus, fibrous
fictitius, fictitious
filamentosus, filamentous, thread-like
filia, ae, f., daughter
filiformis, filiform, thread-shaped
filiger, filament-bearing
filum, i, n., thread
fimbria, ae, f., fringe
fimbrians, fringing
fimbriatulus, slightly fringed
fimbriatus, fimbriate, fringed
fimicola, fimicole, dwelling on dung
finus, i, m., dung
findo, to cleave, divide
firmulus, somewhat firm
fissilis, cleft, ruptured
fissuratus, fissured, split
fissus, split
fistulosus, hollow
flabelliformis, fan-shaped
flaccidus, weak
flagella, ae, f., lash
flagellatus, bearing long bristles or threads
flagelliformis, lash-like
flamens, flame-colored
flavens, yellowing
flavidus, yellowish

flavus, yellow
flexuosus, flexuous, full of turns or windings
flexus, bent
flocciformis, tuft-like
floccosus, floccose, cottony
floccus, i, m., tuft
floralis, floral
flumen, inis, n., river
fluvius, ii, m., a river
fluxilis, flowing
foedatus, dark, soiled
foetidus, with a bad odor
foliicola, foliicole, living on leaves
foliose, like a leaf in form
folium, ii, n., leaf
foramen, inis, n., a hole
forma, ae, f., form
formans, forming
formo, to form
formosus, beautiful
fornix, icis, m., a vault
forsan, perhaps
forsitan, perhaps
fortasse, perhaps
forte, strongly
fovens, nourishing
fraccidus, soft, mellow
fractus, broken
fragilis, fragile
fragmentum, i, n., a bit, fragment
frequens, frequent
friabilis, falling to pieces
frigidarium, ii, n., a cold place, cold storage
frondosus, leafy
frons, dis, f., a leaf
fruticola, living on fruits
fructiferus, fructifer, fruit-bearing
fructificans, fruiting
fructificatio, nis, f., fruiting
fructus, us, m., fruit
frustulatus, fragmentary
frustum, i, n., a bit, piece
fruticosus, fruticose, shrub-like
fruticulosus, fruticulose, shrub-like
fucatus, colored
fugans, fleeting
fulciens, supporting
fuliginus, fuliginous, sooty

fuligo, inis, f., soot
 fultus, supported
 fulvellus, somewhat tawny
 fulvescent, becoming tawny
 fumagineus, fumaginous, smoky.
 fumosus, smoky
 fungicola, fungicole, growing on fungus
 fungillus, i, m., a little fungus
 fungus, i, m., a fungus
 funicularis, rope-like
 funiculus, i, m., a little rope
 funiformis, rope-like
 furcatus, furcate, forked
 furfur, uris, m., bran
 furfuraceus, bran-like
 furfurellus, covered with bran
 fuscatus, darkened
 fuscillus, somewhat dark
 fuscescens, darkening
 fuscidus, dark
 fuscidulus, dark
 fuscus, dark, or dark brown
 fusiformis, fusiform, spindle-shaped
 fusisporus, with spindle-shaped spores
 fusoides, fusoid, spindle-shaped

G

galeiformis, hood-shaped
 galeriformis, cap-shaped
 gamete, sex-cell
 gangliiformis, forming knots
 gangligerus, bearing knots
 gelatina, ae, f., gelatine
 geminatus, paired, twinned
 gemmiparus, producing buds
 generans, generating
 genesis, is, f., origin
 geniculatus, bent
 genuflexus, bent
 genuinus, genuine
 genus, eris, n., genus
 gerens, bearing
 germinans, germinating
 germinatio, onis, f., germination
 gibbosus, swollen
 gigastylosporus, with very large stylospores
 gignens, producing
 gigno, to bear
 gilvus, brownish

glaber, smooth
 glabrescens, becoming smooth
 glacies, ei, f., glacier, ice
 glans, glandis, f., a nut,
 glaucescens, turning bluish-green
 glaucus, sea-green
 gleba, ae, f., soil, mass
 globosus, globose, rounded
 globuliger, bearing a ball
 globulus, i, m., a globule
 glomerula, ae, f., a little mass
 glomerulatus, in heaps
 gluten, inis, n., glue
 glutinosus, glutinous
 gonidium, ii, n., an algal cell
 gossypinus, cottony
 gracilis, graceful, slender
 gradatim, gradually
 gradus, us, m., grade, step
 gramen, inis, n., grass
 gramineus, grassy
 graminicola, growing on grass
 grandis, large
 grandiusculus, somewhat large
 granulatus, granular
 granulosis, granular
 graphidoideus, long and cleft, like

Graphis

graveolens, of unpleasant odor
 gregarius, gregarious, in clusters
 gregatim, in clusters
 grex, gregis, m., a flock
 griseolus, grayish
 griseus, gray
 grossus, thick
 grumosus, heaped
 grumulus, i, m., a heap
 gumosus, gummy
 gutta, ae, f., a vacuole
 guttatus, with little drops
 guttula, ae, f., a drop or vacuole
 guttulosus, with drops
 gyalectoideus, Gyalecta-like
 gypseus, gypsum-like
 gyrosus, gyrose, spiral

H

habeo, to have
 habitatio, onis, f., habitat
 habitus, us, m., habit

hactenus, up to the present time
haerens, adhering
haereo, to hold to
halos, o, f., a halo
hamatus, hamate, hooked
haud, not at all
haustorium, ii, n., a sucker
helicoideus, spiral-like
heliotropicus, heliotropic
helvolus, deep purple
herba, ae, f., a plant
herbicola, dwelling on herbs
heterogamete, one of two unlike sex-cells
heterogeneus, different
heteroicus, on two hosts
heteromorphus, heteromorphic, of different kinds
hexagonus, hexagonal
hexasporus, six-spored
hians, gaping
hiascens, gaping
hibernans, resting
hicillic, here and there
hinc, hence
hirtellus, somewhat shaggy
hodiernus, of today
homogeneous, homogeneous
homoicus, on one host
homomorphus, alike, of one form
horizontalis, horizontal
hornotinus, of this year
hortus, i, m., a garden
hospes, itis, m., a host
hospitalis, of a host
huc, hither, in this direction
humectatus, wet
humectus, moist
humidulus, moist
humilis, low, small
humistratus, moist
humus, i, f., the earth
hyalinulus, somewhat clear
hyalinus, hyaline, clear
hyalosporus, with clear, one-celled spores
hydrophilus, aquatic
hygrometricus, absorbing moisture
hygrophanus, translucent
hymeniferus, membrane-bearing

hymenium, ii, n., fruiting surface, consisting of asci, or of basidia.
hymenophorum, i, n., that which bears the hymenium
hypertrophians, hypertrophying
hypha, ae, f., a fungus filament
hyphasma, atis, n., the mycelium.
hyphoideus, hypha-like
hyphomycetus, mould-like, cobwebby
hypocreaceus, Hypocrea-like, fleshy and bright-colored
hypodermicus, under the epiderm
hypogaeus, hypogaeal, underground
hypogenus, on the under side
hypophloeodus, under the bark
hypophyllus, on the under side of leaf
hypostroma, atis, n., lower stroma
hypothallus, i, m., hypothallus
hypothecium, the area just below the layer of asci
hysteriformis, Hysterium-like, long and cleft
hysterinus, long and cleft as in Hysterium
hysterothecium, an oblong or linear perithecium opening by a cleft

I.

ibi, there, then
icon, onis, f., an image, figure
idem, the same
ideoque, therefore
idoneus, fit
igitur, therefore, accordingly
ignotus, unknown
imbricatus, imbricate
immaculatus, without spots
immarginatus, without a margin
immaturus, young
immediate, directly
immersus, sunken
immutatus, unchanged
impalpabilis, extremely fine and minute
impervius, impervious
implens, filling
implexus, infolded
impolitus, not polished
impositus, imposed

- imprimis, especially
 improbable, improbably
 imus, lowest
 inaequilateralis, unequal-sided
 inaequaliter, unequally
 inaequipolaris, with unequal poles
 inanis, empty
 inarticulatus, without divisions
 incarceratus, hidden
 incarnatus, pink
 incertus, uncertain
 incisio, onis, f., incision, cutting
 incisus, cut
 inclinatus, bent
 inclusus, inclosed
 incoctus, not cooked
 incolens, dwelling in
 incoloratus, without color
 inconditus, confused, unformed
 incrassatulus, somewhat thickened
 incrassatus, broadened, thickened
 increSCO, to grow in, increase
 incumbens, lying upon
 incurviusculus, somewhat incurved
 incusus, forged, made
 indeterminatus, indefinite
 indico, to indicate
 indigito, to utter, announce
 indivisus, undivided
 indoles, is, f., nature, natural ability
 indumentum, i, n., a covering
 induratus, hardened
 indurescens, growing hard
 indusium, ii, n., indusium
 indutus, covered
 ineptum, improper
 inermis, unarmed
 inferior, lower
 inferus, below, lower
 infestans, infesting
 inficiens, infecting
 infimus, lowest
 infixus, fastened in
 inflans, inflating
 inflatus, inflated
 infossus, sunken
 infra, lower, below
 infundibuliformis, infundibuliform, funnel-shaped
 infuscatus, darkened
 initio, at first
 initium, ii, n., the beginning
 innatus, innate
 innotesco, to become clear
 innumerus, innumerable
 inordinatus, without order
 inquinans, blackening
 inquinatus, dirty
 inquirendus, to be investigated
 insculptus, insculptate, hollowed
 insectum, i, n., insect
 insertio, onis, f., insertion
 insertus, inserted
 insidens, seated upon
 insitus, ingrafted
 inspersus, scattered
 inspissatus, thickened
 instar, like
 instructus, built up
 insuetus, unusual
 insula, ae, f., an island
 integer, whole
 intense, intensely
 intercalary, in the midst of, between
 interdum, sometimes
 interim, meanwhile
 intermedius, intermediate
 intermixtus, mixed with
 internervius, between the nerves
 internus, internal
 interspersus, interspersed, scattered
 interstitium, ii, n., a space
 intertextus, intertwined
 intus, within
 intracellularis, within the cell
 intrans, entering
 intricatus, intertwined
 intumescens, swelling
 intus, within
 invasus, invaded
 inversus, inverted
 investiens, covering
 invicem, in turn, mutually
 involucrum, i, n., involucre
 ipse, self
 irregularis, irregular
 irregulariter, irregularly
 irrepens, creeping in
 irroratus, bedewed
 isabellinus, isabel-colored

isogamete, one of two similar sex-cells
 isthmus, *i, m.*, a connection
 itaque, therefore
 iteratus, repeatedly

J

jacio, to throw
 jamdudum, this long time
 jodicus, of iodine
 jodus, *i, m.*, iodine
 junior, younger, young
 jus, *juris, n.*, law, right
 juvenilis, young
 juxta, near

L

labiatus, lipped
 labium, *ii, n.*, lip
 labrum, *i, n.*, a lip
 labyrinthus, labyrinthian, tortuose
 laccatus, milky
 lacerans, tearing
 laceratus, lacerate, torn
 lacerus, torn
 lacinia, *ae, f.*, a tear
 laciniatus, lacinate, torn, lobed
 lacrimiformis, tear-like
 lactens, milky
 lactescens, milky
 lactiginosus, filled with milk, milky
 lacuna, *ae, f.*, a hole
 lacunosus, lacunose, with hollows
 lac, *lactis, n.*, milk
 lacus, *us, m.*, a lake
 laeticolor, bright-colored
 laetus, bright
 laevis, smooth
 lageniformis, flask-shaped
 lamella, *ae, f.*, gill
 lamina, *ae, f.*, scale, layer, blade
 laminaris, leaf-like
 lanatus, woolly
 lanceolatus, lance-shaped
 languens, withering
 lanosus, woolly
 lanuginosus, woolly
 laricinus, of larch
 larva, *ae, f.*, larva
 lateritius, brick red
 latitudo, *inis, f.*, width

latiusculus, somewhat wide
 latus, *eris, n.*, the side
 latus, broad, wide
 laxus, loose
 lectus, collected
 lego, to collect
 leiosporus, with smooth spores
 leniter, slightly, gently
 lenticularis, lenticular, lens-shaped
 lentiformis, lens-shaped
 lentus, tough, flexible
 leporinus, of a hare
 leptodermus, thin-walled
 leprosus, scab-like
 leucosporus, with white spores
 levis, light, smooth
 levitas, *atis, f.*, smoothness
 liber, free
 liberatus, freed
 lichenicola, lichenicole, growing on lichens
 lichenoides, lichen-like
 ligneus, woody
 lignatilis, of wood
 lignicola, lignicole, growing on wood
 lignum, *i, n.*, wood
 lilacinus, lilac-colored
 limbatus, bordered
 limbum, *i, n.*, limb, border
 limes, *itis, m.*, limit
 limitatus, limited
 limoniformis, lemon-shaped
 linea, *ae, f.*, line
 linearis, linear
 lineola, *ae, f.*, little line
 linguiformis, tongue-shaped
 liquifaciens, liquifying
 liquo, to melt
 lirella, *ae, f.*, furrow
 lirelliform, furrow-like
 lividus, livid, purple
 lobulatus, somewhat lobed
 locandus, to be located
 locatus, located
 locellatus, with chambers
 locellus, *i, m.*, a little cell
 loco, to place, locate
 loculiferus, containing hollows
 loculus, *i, m.*, locule, place, cell, hollow

locus, i, m., place
 longicollus, with long beaks
 longior, longer
 longitrorsum, longitudinally
 longitudinalis, lengthwise
 longus, long
 lophus, i, m., a crest
 lubricus, slippery
 lucidus, clear, lucid
 ludibundus, playful
 lumen, inis, n., opening
 lunatus, crescent-shaped
 lunulate, crescent-shaped
 luridus, lurid
 luteus, yellow
 lutescens, yellowish
 lux, lucis, f., light

M

maceratus, softened
 macro-, large
 macrostylospora, ae, f., large stylo-spore
 macula, ae, f., a spot
 macularis, spotted
 maculicola, dwelling on spots
 maculiformis, spot-shaped
 madidus, moist, wet
 magis, more
 magniguttatus, with one or two large globules
 magnitudo, inis, f., size
 magnus, great, large
 majusculus, somewhat large
 male, poorly
 mamillaris, protuberant
 mamilliformis, shaped like a papilla
 manifestus, evident
 mappa, ae, f., a map
 marcescens, withering
 marginatus, margined
 margo, inis, m., and f., margin
 marmoratus, marble-like
 massa, ae, f., mass
 massula, ae, f., a little mass
 matricalis, belonging to the matrix
 matrix, icis, f., matrix, layer or tissue
 maturus, mature
 maturescens, ripening
 maxime, greatly
 mazaedium, i, n., a dough-like mass of spores and paraphyses
 medietas, atis, f., middle
 mediocris, average
 mediocriter, moderately
 medius, i, m., medium
 medulla, ae, f., the pith, medulla
 medullary, belonging to the pith or medulla
 medullatus, stuffed, pithy
 melanosporus, with black spores
 melioideus, meliola-like
 melius, better
 melleus, honey-colored
 mellinus, honey-colored
 membrana, ae, f., membrane
 membranaceus, membranaceous, membranous, thin or membrane-like
 memoria, ae, f., memory
 mens, mentis, f., mind
 merenchymaticus, with many cells
 merens, deserving
 meridionalis, southern
 mesogenus, mesogenous, borne in the middle
 mesopodes, with stem in the middle
 mesopus, with central stalk
 metageneticus, metagenetic
 metallicus, metallic
 metiens, measuring
 metulaeformis, pyramid-shaped
 metuliformis, pyramid-shaped
 micro-, small
 microconidiophorus, bearing small conidia
 microcystis, small-celled
 micronemeus, with short hyphae
 micropycnidium, ii, n., small pycnidium
 microscopium, ii, n., microscope
 microstylospora, ae, f., microstylo-spore
 migro, to move
 miniatus, bright red
 minimum, least
 minor, smaller
 minuties, ei, f., detail
 minutus, minute

mitis, pleasant, mild
 mitratus, mitre-shaped
 mobilis, mobile, moving
 molecularis, molecule-like
 molliusculus, somewhat smooth
 mollis, smooth
 moneo, to caution, warn
 monile, is, *n.*, a chain, necklace
 moniliformis, chain-like
 monoascus, with one ascus
 monocephalus, monocephalic, one-headed
 monocylus, with one cycle
 monoicus, monoecious
 monoplastus, uniform, with one protoplast
 monospermus, one-spored
 monosporus, one-spored
 monostichus, monostichous, in one row
 mons, tis, *m.*, a mountain
 monstrosus, monstrous
 montanus, mountainous
 montosus, mountainous
 morbosus, diseased
 moriens, dying
 mos, moris, *m.*, manner
 motilis, motile, able to move
 movens, moving
 mox, at length
 mucedineus, white and cottony
 mucilago, inis, *f.*, mucilage
 mucosus, mucose, slimy, mucous
 mucus, *i, m.*, mucus
 mucro, onis, *m.*, a point
 mucronatus, pointed
 mucronulatus, with a little point
 mucronulus, *i, m.*, a little point
 multifidus, multifid, many-divided
 multiguttatus, with many oil-drops
 multilocularis, many-celled
 multiloculatus, with many cells
 multinucleate, with many nuclei
 multisporus, many-spored
 multizonatus, with many zones
 multoties, many times, often
 multus, much
 munitus, furnished
 muralis, muriform
 muriculatus, muriculate, spiny

muriformis, muriform, with cross and longitudinal walls
 murinus, mouse-colored
 murus, *i, m.*, wall
 muscosus, mossy
 mutans, changing
 mutatus, changed
 muticus, muticate, not pointed
 muto, to change
 mutue, mutually
 mutuus, mutual
 mycelialis, mycelial
 mycelicus, mycelial
 mycelium, *ii, n.*, mycelium
 mycogenus, dwelling on fungi
 mycologus, *i, m.*, a student of fungi
 myochrous, mouse-colored
 myriosporus, with many spores
 mytiliform, shell-like

N

nascens, arising
 nascor, to be born
 natalis, native
 naufragium, *ii, n.*, shipwreck
 navel, point of attachment
 navicularis, boat-shaped
 nebulosus, nebulous, cloudy, dark
 nec, not
 nectriaceus, Nectria-like
 nemorosus, woody, shady
 neque, and not
 nervicola, growing on veins
 nervi-sequus, nervi-sequens, following the veins
 nidulans, nesting
 nidolor, to nest
 niduo, to nest
 niger, black
 nigredo, inis, *f.*, blackness
 nigresco, to grow black
 nigricans, blackening
 nigrifactus, blackened
 nigrificatus, made black
 nigrolimitatus, black-lined
 nigropilus, black-hairy
 nigropunctulatus, black-dotted
 nigrostrigosus, black-hairy
 nimium, too, too much
 nisi, unless

nitens, shining
 niteo, to shine
 niveus, snow-white
 nobilis, grand
 nodosus, with joints
 noduliferus, bearing knots
 nodulosus, with joints
 nodus, *i, m.*, a joint, knot
 nomen, *inis, n.*, a name
 non, not
 nondum, not yet
 nonne, not
 nonnihil, somewhat
 nonnisi, except
 nonnullus, some
 normalis, normal
 notatus, marked
 notus, known
 novus, new
 nubecula, *ae, f.*, a little cloud
 nubilosus, cloudy
 nucleatus, nucleate
 nucleiferus, nucleus-bearing
 nucleolus, nucleole
 nucleus, *i, m.*, center, nucleus
 nudiusculus, somewhat naked
 nudus, naked
 nullimodus, in no wise
 nullus, none
 numerosus, numerous
 numerus, *i, m.*, a number
 numquam, never
 nunc, now
 nutiqueam = *ne-utiquam*, by no means
 nuto, to incline
 nutrix, *icis, f.*, host
 nux, *nucis, f.*, a nut

O

ob, for, toward, on account of
 obclavatus, reversed club-shaped
 obconicus, reversed-conical
 obducens, covering
 obduco, to cover
 oblique, obliquely
 obliterans, disappearing
 obliterated, lost, destroyed
 oblongatus, oblong
 oblongus, oblong
 obpyriformis, obpyriform, reversed
 pear-shaped

obrutus, covered
 obscurus, dark
 observandum, to be observed
 observatus, found
 obsessus, surrounded
 obsolesco, to become obsolete
 obsoletus, obsolete, lacking
 obtectus, covered
 obtegens, covering
 obturaculum, *i, n.*, opening
 obtusangulus, with obtuse angles
 obtusatus, obtuse
 obtusus, obtuse
 obtutus, *us, m.*, a looking at
 obvallatus, surrounded
 obvelo, to cover
 obvius, clear, open
 obvolvens, enveloping
 occellatus, with openings
 oculo nudo, with unaided eye
 occupans, occupying
 ochraceus, pale yellow, ochreous
 ochrosporus, with yellow or yellow-
 brown spores
 octavus, eighth
 octo, eight
 octonus, in eights
 octoseptatus, with eight cross-walls
 octosporus, eight-spored
 oleosus, oily, with oil drops
 oligosporus, few-spored
 olim, formerly
 olivascens, olivascent, becoming olive
 olivaceus, olive
 omissus, omitted
 omnino, everywhere, entirely
 oosporous, with resting spores formed
 by the union of unlike sex-cells, e.g.,
 of egg and sperm
 opacus, opaque
 opalinus, clear
 operculatus, operculate, with a lid
 operculiformis, lid-shaped
 operculum, *i, n.*, a cover, lid
 oppidum, *i, n.*, a town
 oppletus, filled
 oppositus, placed
 orbicularis, orbicular, round
 orbiculatim, circularly

orbis, is, m., a circle
 ordo, inis, m., order
 organicus, organic
 organum, i, n., an organ
 oriens, arising
 orientalis, eastern
 orificium, i, n., opening
 originalis, original
 origo, inis, f., origin
 orior, to arise
 ornatus, furnished
 orthotropus, straight
 ortus, arisen
 os, oris, n., mouth
 oscillans, oscillating
 osculum, i, n., mouth
 ostendo, to show
 ostiolatus, ostiolate, with a mouth
 ostiolum, i, n., ostiole, opening
 ovalis, oval
 ovaricola, growing in ovaries
 ovatus, egg-shaped
 ovinus, of or belonging to a sheep
 ovoideus, nearly egg-shaped

P

pachydermaticus, thick-walled
 pachypleurus, thick-walled
 paene, nearly
 paenultimus, next to the last
 pagina, ae, f., page, side
 paliformis, paliform, stake-shaped,
 palisade-like
 pallescens, turning pale
 pallidus, pale
 palmatus, palmate, hand-like, palm-
 like
 palmicola, growing on palms
 palpebra, ae, f., eyelid
 paludosus, marshy
 palumbinus, dove-colored, grayish
 palus, udis, f., a marsh, swamp
 panicula, ae, f., a panicle
 paniculatus, paniculate, branched
 panis, is, m., bread
 pannosus, pannose, ragged
 pannum, i, n., a rag, cloth
 papillaris, papillate
 papillatus, with papilla, papillate
 papilliformis, like a papilla
 papillula, ae, f., a little papilla
 papillulatus, with a very small nipple
 or papilla
 papulosus, with many pustules
 papyraceus, papery
 paradoxus, strange, contrary
 parallelus, parallel
 parasiticus, parasitic
 parcus, few, scanty
 parenchymaticus, parenchyma-like
 paries, etis, m., a wall
 paritas, atis, f., equality
 paroecchia, ae, f., parish
 pars, partis, f., a part
 partitus, divided
 parum, too little
 parvulus, small
 parvus, small
 pascuum, i, n., pasture
 passim, everywhere
 patellaris, dish-like
 patelliformis, shaped like a dish
 patens, spreading
 patenter, openly
 patior, to support, endure
 patulus, spreading
 paucilocularis, few-celled
 paucus, few
 paulatim, gradually
 paulisper, for a little while
 paulo, a little
 pectinatus, comb-like
 peculiaris, peculiar
 pedatus, foot-like
 pedicellatus, with a pedicel
 pedicellus, i, m., pedicel
 pediculatus, pedicelled
 pedunculatus, stalked
 pedunculicola, growing on peduncles
 pellicle, skin, covering
 pellicula, ae, f., a little skin
 pelliculosus, with a covering
 pelluciditas, atis, f., clearness
 pellucidus, pellucid, clear
 peltatus, shield-shaped
 pendo, to hang
 pendulus, hanging
 penetrans, penetrating
 penicillate, brush-like
 penicilliformis, brush-like

- pentagonus, pentagonal
 per, through
 peraffinis, closely related
 perbrevis, very short
 percursus, run through
 perdurans, resting
 perduro, to last
 perennans, perennial
 perennis, perennial
 perexiguus, very thin
 perexilis, very slender
 perfectus, complete, perfect
 perforans, perforating
 perforatus, perforated
 perfossus, hollowed out
 pericarpium, ii, n., pericarp, covering
 peridermicus, belonging to the periderm
 peridermium, ii, n., periderm
 peridium, ii, n., peridium
 periphericus, peripheral around the edge
 peristomium, ii, n., mouth
 perithecialis, perithecial
 perithecigerus, perithecium-bearing
 perithecioid, perithecium-like
 peritheciophorus, bearing perithecia
 peronatus, rough, rough-booted
 perparum, very little
 perrumpens, breaking through
 persicinus, peach-colored
 persistans, persistent
 perspicuens, transparent
 perspicuus, clear
 persuasus, convinced
 pertenuis, very thin
 pertineo, to belong
 pertusus, protruded
 pes, pedis, m., foot
 petiolum, i, n., petiole
 petrifactus, made like rock, hardened
 pezizoideus, pezizoid, cup-fungus-like, cup-like
 phacidiodeus, like Phacidium, black and disk-like
 phaeophragmeus, with dark transeptate spores
 phaeosporus, with dark, one-celled spores
 phaseoliformis, bean-shaped
 phomatoideus, Phoma-like
 phyllogenus, phyllogenous, borne on leaves
 phyllostictodeus, Phyllosticta-like
 phytogenus, growing-on plants
 phytographus, i, m., a botanist
 phytophilus, phytophilous, growing on plants
 pictura, ae, f., a painting
 pictus, colored
 pileatus, cap-shaped
 pileus, i, m., a cap
 pilosellus, somewhat hairy
 pilosus, pilose, with hairs
 pilum, i, n., a hair
 pineus, piny
 pingo, to paint
 pinna, ae, f., a leaflet
 pinnatus, pinnate
 piperatus, peppery, pungent
 piscis, is, m., a fish
 pisum, i, n., pea
 placenta, ae, f., placenta
 placentiformis, placenta-like
 plaga, ae, f., a spot
 plagula, ae, f., a little spot
 plaguliformis, spot-like
 planta, ae, f., a plant
 plantula, ae, f., a little plant
 planus, plane, flat
 plasma, atis, n., plasm, mass
 plasmodium, ii, n., protoplasm-like mass
 pleiosporus, many-spored
 plenus, full
 plerumque, for the most part
 pleuroacrogenus, borne at the tip and at the sides
 pleurogenus, pleurogenous, borne on the walls or sides
 plica, ae, f., a fold
 plicatus, plicate, folded
 pliciformis, fold-form
 plumbeus, lead-colored
 plures, many
 pluriarticulatus, many-celled
 pluriciliate, with many cilia
 plurifurcatus, many forked
 pluriguttulatus, many guttulate
 plurilocellatus, with many hollows

- pluriperforate**, with several openings
pluristratosus, many-layered
poculiformis, cup-shaped
podetium, *i, n.*, a stalk-like or cup-like erect thallus
polaris, polar
politus, polished
polleo, to be able, avail
pollex, icis, m., thumb
pollicaris, thumb-like, an inch long
polus, i, m., a pole
poly-, many
polyascus, with many asci
polyblastus, many-celled
polycephalus, polycephalous, with many heads
polyedricus, polyhedral
polygonus, with many angles
polyrrhizus, with many roots
polystichus, polystichous, in many rows
pondus, eris, n., weight
populus, i, f., poplar
porosus, with pores
porrigo, to stretch out
porus, i, m., a pore
positus, placed
possum, to be able
postea, hereafter
postice, at the back
postremus, last
potius, rather
praecedens, preceding
praecipue, especially
praeclarus, distinguished
praecox, early, abundant
praeditus, furnished
praeferendum, preferred
praelongus, very long
praeprimis, especially
praesens, present
praesertim, particularly
praestans, distinguishing, excelling
praesumptus, assumed, presumed
praetereaue, besides, moreover
praeteritus, past
pratium, i, n., a meadow
primitivus, primitive
primitus, at first
primus, first
prioritas, atis, f., priority
prismaticus, prismatic
privus, without, deprived
pro, for
probabilis, probable
procerus, tall
processus, projection
procumbens, procumbent, prostrate
prodeus, projected
productus, carried out, produced
proficiscor, to begin, arise
profunditas, atis, f., depth
profundus, deep
projectus, thrown off
proles, is, f., a race, offspring
proliferus, prolific, produced, proliferate
proliger, bearing offspring
prolongatio, onis, f., prolongation; lengthening
promycelium, i, n., promycelium
prope, near
proper exciple, an apothecial covering or wall without algae
propius, proper
propinquus, adjacent
propulsus, expelled
proratione, comparatively
prorsus, forwards, exactly
prorumpo, to break through
prosenchymaticus, prosenchymatic, consisting of long cells or filaments
proteus, changing, variable
protractus, extended
protrudens, projecting
provectus, prolonged, advanced
proveniens, coming
pruinulosus, somewhat powdery
pruinosis, powdery, pruinose
pseudo-, false
pseudoparaphyses, false paraphyses
pseudoparenchyma, false parenchyma, a tissue looking like parenchyma but formed of threads
pseudoperidium, a covering
pseudoplasmodium, ii, n., a false plasmodium
pseudopodium, ii, n., false foot, lobe
pseudostium, i, n., false ostiole

pseudostroma, *atis*, *n.*, a false stroma
pseudostromaticus, resembling a stroma
ma
pseudothallus, *i*, *m.*, false thallus
puberulus, somewhat hairy
pubescens, hairy
pubes, *is*, *f.*, hair
puccinoideus, puccinia-like
pulchellus, beautiful
pulcher, beautiful
pulchre, beautifully
pulpa, *ae*, *f.*, pulp, mass
pulveraceus, powdery
pulverulentus, powdery
pulvinatus, cushioned
pulvinulus, *i*, *m.*, a little cushion
pulvis, *eris*, *m.*, powder
punctiformis, punctiform, dot-like
punctulans, dotting
punctulatus, punctate, dotted
purpurascens, becoming purple
purus, pure
pusillus, tiny
pusio, *onis*, *m.*, a growth
pustula, *ae*, *f.*, a mass
pusulate, pertaining to a swollen
mass
putamen, *inis*, *n.*, a shell
putredo, to decay
putrescens, decaying
putris, decaying
pycnidicus, pycnidial
pyramidatus, pyramidal
pycnidium, *i*, *n.*, pycnidium
pyreniformis, pyreniform, shaped like
a nut
pyriformis, pear-shaped
pyxidatus, like a box

Q

quadricoccus, of four round cells
quadripartitus, four-divided
quadrisporus, four-spored
quadrum, *i*, *n.*, a square
qualis, like
quam, than
quandoque, whenever, at some time
quartus, fourth
quasi, almost
quater, four times

quaternus, by fours
quattuor, four
quercinus, oaken
quia, because
quinqueseptatus, five septate
quisque, each
quisquillae, *arum*, *f.*, dirt, trash
quoad, as long as, as much as
quod, that
quoque, also

R

racemulus, *i*, *m.*, a little raceme
racemus, *i*, *m.*, a bunch of grapes, *raceme*
rachis, *is*, *f.*, axis
radians, radiating
radiatim, radiately
radiatus, radiate
radicalis, basal
radicans, root-like, rooting
radicatus, radicate, more or less root-
ed
radiciformis, root-shaped
radicosus, having many roots
radix, *icis*, *f.*, a root
ramicola, ramicole, living on twigs
ramosus, much branched
ramulus, *i*, *m.*, a little branch
ramus, *i*, *m.*, a branch
rarius, more rarely
raro, rarely
rasus, leveled
reabsorptus, reabsorbed
recedo, to recede, differ
recensio, *onis*, *f.*, a reviewing
recludens, opening
recognoscens, recognizing
rectangularis, rectangular
rectangulus, rectangular
rectus, straight
reddo, to return, restore
refractus, turned back
refringens, refringent
regio, *onis*, *f.*, region
relatus, related
relinquens, leaving
relinquo, to leave
reliquus, left, remaining
remote, distantly

remotiusculus, somewhat distant
reniformis, reniform, kidney-shaped
repandus, turned back
repens, creeping
reperio, to find
repertorium, ii, n., an inventory, catalogue
reptus, found
repetite, repeatedly
repetitus, repeated
repletus, full
repo, to crawl
res, rei, f., a thing
resolvens, breaking up
resorptus, absorbed
resupinatus, resupinate, horizontal,
the hymenium turned up
reticulatus, reticulate, net-like
reticulum, i, n., a net
retiformis, net-like
retineo, to retain, keep
retis, is, f., a net
retrorsus, backward
retusus, with a little sinus
revelo, to reveal, uncover
revivescens, reviving
revoco, to recall
revolutus, folded back
rhabarbarinus, yellow
rhizoid, root
rhizoideus, root-like
rhizomorphaeus, root-like
rhizophilus, growing on roots
rhodosporus, with rose-colored spores
rhombius, rhombic
rhomboideus, rhomboid
rhytismoideus, Rhytisma-like
ricciiformis, like Riccia, a liverwort
rigens, stiff, rigid
rigidulus, somewhat stiff
rigidus, stiff
rima, ae, f., cleft
rimosus, rimose, cleft, cracked,
ripa, ae, f., bank
rite, rightly, fitly, well
rivulosus, with channels
rivus, i, m., brook
robustus, robust
roridus, like dew
ros, roris, m., dew

roseolus, somewhat rosy
roseus, rose-colored
rostellatus, somewhat beaked
rostratus, rostrate, beaked
rostriformis, beak-like
rostrum, i, n., beak
rosulatus, rosette-like
rotundatus, rounded
rubeolus, somewhat reddish
ruber, red
rubellus, somewhat reddish
rubescens, growing red
rubiginosus, rust-colored
rubricosus, reddish
rufescens, becoming reddish
rufus, reddish
rugosiusculus, more or less wrinkled
rugulosus, furrowed, roughened
rumpens, breaking
ruptus, broken
rursus, backward
rutilus, red

S

saccatus, saccate, sac-like
saccharinus, sugary
saccharum, i, n., sugar
sacciformis, sac-shaped
sacculiformis, like a little sac
sacculus, i, m., a little sac
saepe, often
salicinus, of willow
salmonicolor, salmon colored
salmonius, salmon-colored
saltem, at least
samara, ae, f., key fruit
samariform, key-shaped
sanguineus, bloody, blood-colored
sapidus, filled with sap, savory
sapor, oris, m., flavor
saprogenus, saprogenous, growing on
decayed matter
saprophilus, growing on decaying
matter
saprophyticus, saprophytic
sarciniformis, sarciniform, packet-
like
sarmentum, i, n., twig
satis, sufficient
saturatus, saturated

- scaber, rough
 scabridus, rough
 scabriusculus, somewhat rough
 scalaris, of a ladder, or staircase
 scaliformis, ladder-like
 scariosus, thin, papery
 scheda, ae, f., sheet of paper
 scio, to know
 scissilis, splitting
 sclerotiformis, sclerotium-like
 sclerotioideus, sclerotoid, sclerotium-like
 sclerotium, i, n., sclerotium, a hard black mass
 scolecosporus, with thread shaped spores
 scopulate, like a brush
 scrobiculatus, roughened, furrowed
 scrotiformis, bladder-like
 scruposus, rough
 scrutator, oris, m., an investigator
 scutatus, shield-shaped
 scutellatus, like a small shield
 scutiformis, shield-shaped
 secedens, separating
 discernibilis, separable
 sectio, onis, f., a section
 secundarius, secondary
 secundum, according to
 secus, otherwise
 sed, but
 sedulus, diligent, careful
 segmentiformis, segment-like
 sejunctus, separate
 semel, once
 semen, inis, n., a seed
 semi, half
 semiexertus, half extended
 semiimmersus, half immersed
 semiinfossus, (cf. infossus)
 semiinsculptus, (cf. insculptus)
 seminalis, seed-like
 seminicola, growing on seeds
 semipellucidus, half-pellucid
 semiteres, half columnar
 semiuncialis, a half inch
 semper, always
 senescens, growing old
 sensim, gradually
 sensus, us, m., opinion, sense
 separabilis, separable, separating
 separo, to separate
 sepimentum, i, n., partition
 sepono, to separate
 septatus, septate, divided into cells
 septentrionalis, northern
 septulum, i, n., a little septum
 sepulchrum, i, n., grave
 sequens, following
 sericellus, somewhat silky
 sericeus, silky
 series, ei, f., a series
 serotinus, late
 serpens, creeping
 serpentinus, serpentine
 serratus, serrate
 serus, late
 sesqui, by a half
 sesquilinea, one inch and a-half
 sesquipedalian, very long
 sessilis, seated, without a stalk
 seta, ae, f., a bristle
 setaceus, bearing one or more bristles
 setiformis, bristle-shaped
 setiger, bristle-bearing
 setosus, setose, with bristles
 setula, ae, f., a little bristle
 setulose, with bristles or spines
 seu, or
 sexilocularis, with six cells or locules
 sexsporus, six-spored
 sexsulcatus, six-furrowed
 siccans, drying
 siccus, dry
 sigillatim, seal-like
 sigmoideus, sigmoid, s-like
 signatus, marked
 sileo, to be silent
 silva, ae, f., a forest
 similis, like
 similis, similar
 simple, not branched; one-celled (of spores)
 simplex, icis, simple
 simul, at the same time
 simulate, apparently
 simulo, to imitate, copy, represent
 sine, without
 singularis, peculiar, not in chains
 singulus, each

sinuatus, sinuate
 sinuosus, crooked
 sistens, comprising
 situs, placed
 socia, ae, f., society
 sociatus, grouped together
 scleo, to be accustomed
 solidiusculus, somewhat solid
 solitarius, solitary
 solitus, usual
 sollertus, distinguished
 solubilis, dissolving
 solutus, dissolved
 sordes, is, f., dirt
 sordidus, dirty
 sorus, i, m., spore mass
 spadiceus, brownish
 spatha, ae, f., a spathe
 spargo, to scatter
 sparsus, scattered, sparse
 spathulatus, spatulate
 spatium, i, n., space
 specialis, special
 species, ei, f., species
 spectans, looking
 specto, to look
 spermagonium, ii, n., a pycnidium-like body
 spermatiferus, spermatia-bearing
 spermatiformis, like a spermatium
 spermatioideus, spermatium-like
 spermatium, ii, n., a conidium-like body
 spero, to hope
 sphaericus, spherical
 sphaeroideus, nearly spherical
 sphaerula, ae, f., a sphere
 spica, ae, f., a point, ear
 spicatus, spike-like
 spiculosus, spiny
 spiculum, i, n., a little spine
 spiniformis, spiny
 spinuligerus, spine-bearing
 spinulosus, with little spines
 spira, ae, f., a spiral
 spiralis, spiral
 spiraler, spirally
 spiritus, us, m., a spirit
 spissus, thick
 splendens, splendid

spongilliformis, sponge-like
 spongiosus, spongy
 sponte, spontaneously
 sporangiferus, bearing sporangia
 sporangiolyferus, bearing small sporangia
 sporangiolium, i, n., a little sporangium
 sporangiophore, the stalk of a sporangium
 spore-print, the spore mass obtained by placing the cap of a mushroom flat on a piece of white paper
 sporicus, sporal
 sporidiolum, i, n., a little spore
 sporidium, i, n., a spore
 sporiferus, spore-bearing
 sporodochium, a compact, conidial body, mass of sporophores
 sporomorphus, spore-shaped
 sporophora, ae, f., sporophore
 spurius, false
 squama, ae, f., a scale
 squamosus, scaly
 squarrose, with spreading scales or hairs
 statura, ae, f., stature
 status, us, m., stage
 stellatus, stellate, star-like
 stelliformis, star-shaped
 stercoratus, manured
 stercus, oris, n., dung
 sterigma, atis, n., stalk
 stilbeus, stilbum-like, mallet like
 stilbiformis, stalk-like
 stilboid, with a stalked-head, Stilbum-like
 stipatus, crowded
 stipes, itis, m., a stalk
 stipitatus, stipitate, stalked
 stipitellus, i, m., a little stalk
 stipitiformis, stalk-like
 stoloniferous, producing runners
 stoloniformis, runner-like
 stramineus, straw-colored
 stratosus, in layers
 stratum, i, n., a layer
 strenuus, prompt, vigorous
 stria, ae, f., a line

strigosus, strigose, long or coarsely hairy
 striiformis, line-like
 strobilus, i, m., a cone
 stroma, atis, n., a covering, layer
 stromaticus, stromatic
 stromatiferus, bearing a stroma
 structura, ae, f., a structure
 stipposus, tow-like
 stylospora, ae, f., a stylospore
 suadens, persuading
 suavis, pleasant
 sub, affix meaning somewhat, slightly
 subacutus, somewhat acute
 subaequans, nearly equal
 subalbus, nearly white
 subalutaceus, somewhat yellow
 subastomous, more or less mouthless
 subbulbosus, somewhat bulbous
 subcarbonaceus, slightly carbonaceous
 subcarnulosus, slightly fleshy
 subclavatus, subclavate
 subclypeate, somewhat shield-shaped
 subcolumelliformis, somewhat like a columella
 subconoideus, slightly conical
 subcrustose, somewhat crust-like
 subcuboideus, somewhat cubical
 subcutaneus, under the epidermis
 subdeterminatus, limited
 subdiscoideus, somewhat disc-shaped
 subelevatus, somewhat raised
 suberosus, suberose, corky
 subfuscus, subfuscous, somewhat dark
 subglobosus, subglobose
 subiculum, i, n., subicle, a compact cottony mycelium
 subimmersus, slightly immersed
 subinde, presently, forthwith, now and then
 subito, suddenly
 subnullus, nearly lacking
 substantia, ae, f., substance
 subterraneus, subterranean
 subtilis, thin, slender
 subtilitas, atis, f., fineness, thinness
 subulatus, subulate, awl-shaped
 subuliformis, awl-shaped
 subvitro, under the lens

succresco, to grow under
 suffultus, supported
 sulcatus, sulcate, furrowed
 sulcula, ae, f., a little furrow
 sulcus, i, m., a furrow
 sulphurellus, sulphurish
 sulphureus, sulphur-colored
 summa, ae, f., highest point, sum
 superans, exceeding
 superficialis, superficial
 superficies, ei, f., the surface
 superimpositus, superimposed
 superpositus, superposed
 superus, upper
 supremus, uppermost
 surculus, i, m., a shoot
 sursum, upward
 suspensor, supporting cell or group of cells
 sustinens, supporting
 sylva, ae, f., a forest (see silva)
 sympodice, sympodially
 synnema, atis, n., an erect fascicle of hyphae, as in Stilbaceae

T

tabesco, to melt
 tactus, touched
 taeniola, ae, f., a little band
 talis, such
 tamen, however, yet
 tandem, at length
 tantillus, so little
 tapetum, i, n., nourishing layer
 tarde, slowly, late
 tartareus, powdery
 tectus, covered
 tegens, covering
 tegmen, inis, n., a cover
 teleutospora, ae, f., a teleutospore
 teleutospoeriferus, bearing teleutospores
 tenacellum, somewhat tenaceous
 tenellus, delicate
 tentacula, ae, f., a tentacle
 tentaculiformis, tentacle-shaped
 tenuatim, drawn out
 tenuis, slender
 ter, three times
 terete, cylindrical

teretiusculus, round, cylindric
 terminalis, terminal
 terminatus, terminated
 ternate, in threes
 ternus, three-fold
 terra, ae, f., soil, earth
 terrestris, terrestrial
 tertius, third
 testa, ae, f., a shell, coat
 testaceus, brick-colored
 tetradidymus, four-fold
 tetragonus, four-angled
 tetrasporus, four-spored
 thalamium, i, n., a room
 thallicola, growing on a thallus
 thalliformis, thallus-like
 thalline exciple, applied to an exciple
 containing algae
 thallus, a more or less definite mass
 of hyphae parasitic on algae
 thelephoroideus, thelephora-like
 tigrinus, like a tiger
 tinctus, tinged
 tingens, tinging
 tomentellus, hairy
 tomentosus, hairy
 tornatus, rounded-off
 toruloideus, chain-like
 torulosus, torulose, necklace-like
 tortuosus, flexuous
 tortus, twisted
 totaliter, totally
 totus, all
 trabs, is, f., a beam
 tractus, us, m., a tract
 trahendum, to be drawn
 trama, ae, f., a pathway
 transeptate, with all cross-walls trans-
 verse
 translucidus, clear
 trapezoideus, trapezium-like
 transiens, temporary
 transversalis, transversal
 tremelloideus, tremelloid, gelatinous
 tremellosus, jelly-like
 triangularis, triangular
 tribus, us, f., a tribe
 tricornutus, with three horns
 trifoveolatus, with three hollows
 trigonus, trigonous, three-angled

trilobus, three-lobed
 trinacriiformis, three-pronged
 tripartitus, three-divided
 tripedalis, three feet long
 tripollicaris, three inches
 triquetrus, three-cornered
 trisporus, three-spored
 tristichus, in three rows
 tropicus, tropical
 truncatus, cut-off
 truncicola, growing on trunks
 trunculus, i, m., a little trunk, stem
 truncus, i, m., a trunk
 tuber, eris, n., tuber, a swelling
 tubercularinus, Tubercularia-like
 tubercularioid, Tubercularia-like,
 warted
 tubercularoideus, Tubercularia-like
 tuberculiformis, wart-like
 tuberculosus, roughened
 tuberiform, tuber-like
 tuberiformis, tuberiform, tuber-shaped
 tubulosus, tubular
 tubulus, i, m., a tube
 tumescens, swelling
 tumidulus, somewhat swollen
 tumifactus, swollen
 tunc, then
 tunica, ae, f., cloak, coating
 tunicatus, tunicate, covered
 turbinatus, turbinate, top-shaped
 turgescens, swollen
 turgidus, swollen
 turriiformis, shaped like a tower
 turritus, turreted, tower-like
 typice, usually, characteristically
 typus, i, m., a type

U

uber, rich
 ubi, where
 ubiqueunque, everywhere
 udus, wet
 uliginosus, rich, muddy
 ullus, any
 ultimus, last
 ultra, beyond or more
 -ulus, a, um, suffix, meaning small
 umbellatus, umbellate, umbelled
 umbelliformis, like an umbel

umbilicatus, umbilicate, with a navel,
sunken in the center, somewhat
funnel-form.

umbilicus, i, m., navel

umbonatus, umbonate, with a boss

umbra, ae, f., shade

umbrinus, brown

umbrosus, shady

uncia, ae, f., an inch

uncialis, an inch long

uncinatus, hooked

unde, whence

undique, in all directions

undulatus, wavy

uniarticulatus, one-jointed

unicus, single

uniformis, of one form

unilateralis, one-sided

unilocular, with a single cavity or
cell

uniserialis, one-rowed

uniseriatus, one-rowed

unitus, joined

unquam, ever

urceolatus, pitcher-shaped

uredinicola, growing on rusts

uredospora, uredospore

uredosporiferus, bearing uredospores

urniformis, urn-shaped

uromorphus, tail-like

usque, up to

usurpatus, usurped

ut, as

uterque, both

ut-plurimum, for the most part

utriculiformis, bladder-shaped

utrimque, on both sides, in both di-
rections

uvidus, moist, wet

V

vaccinus, pertaining to a cow

vacuus, empty

vage, vaguely

vagina, ae, f., a sheath

vaginatus, sheathed

vagus, vague

valde, strongly

validiusculus, more or less stout

valseus, valseous, valseoid, Valsa-like,
with the perithecia in a circle in
the stroma

valva, ae, f., a valve

valvatum, valvate, with valves

variabilis, variable

varie, variously

variegatus, of different colors

varius, different

-ve, or

vegetus, fresh, vegetating

venementer, strongly

vel, or

velatus, veiled

vellus, *eris*, n., fleece, wool

velo, to cover

velocitas, *atis*, f., swiftness

velum, i, n., a veil

veluti, as

velutinus, velvety

vena, ae, f., a vein

venenatus, poisonous

veniformis, vein-like

ventricosus, swollen

vere, truly

vergo, to approach

verisimiliter, apparently

vermicularis, worm-like

vermiformis, vermiform, worm-shaped

vernalis, vernal, of or belonging to
spring

vero, truly

verruciformis, wart-like

verruculosus, verrucose, warted

versatus, poured

versicolor, of different colors

versiformis, of different forms

versus, towards

vertens, turning

vertex, *icis*, m., the tip

verticalis, vertical

verticillatim, in whorls

verticillatus, verticillate, whorled

vescus, small, weak

vesicula, ae, f., vesicle, swollen cell

vesiculosus, vesiculose, swollen, blad-
dery

vestiens, covering

vestigium, i, n., remnant, vestige

vestio, to cover

vestitus, furnished, covered
vetustus, old
vibrans, changing
videor, to seem
vigens, growing
villosulus, somewhat woolly
villus, *i, m.*, a hairy covering
vinarius, of wine
vineus, of or belonging to wine
vinum, *i, n.*, wine
violaceus, violet
violascens, turning violet
virens, becoming green
virgatus, rod-shaped
viridarium, *i, n.*, greenhouse
virgultum, *i, n.*, bush, copse
viridifuscus, greenish brown
viridulus, greenish
viscidulus, viscid, somewhat sticky
visibilis, visible
visus, seen
vitellinus, yellow
vitreus, glassy
vivens, living
vividus, vivid
vivus, alive
vix, hardly

volva, *ae, f.*, a cup-like sheath at the base of a stem
volvaceus, with a volva
volvatus, with a volva
vulgatus, common
vulgo, commonly
vulpinus, of a fox

X

xylogenus, xylogenous, growing on wood
xylophilus, growing on wood

Z

zona, *ae, f.*, a zone
zonula, *ae, f.*, a little zone
zoogenus, on animals
zoogonid, a motile propagative cell
zoospora, *ae, f.*, zoospore
zoosporangium, *ii, n.*, zoosporangium
zoosporiferus, producing zoospores
zygosporiacus, pertaining to a zygospore
zygosporous, with resting spores formed by the conjugation of similar sex cells
zymogenus, ferment-producing

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